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CORRECT METHOD OF HOLDING AND FEEDING A BABY

THE HEALTH-CARE OF THE BABY

A HANDBOOK AND FEEDING GUIDE

FOR

PHYSICIANS, MOTHERS, AND NURSES

BY

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THREE HUNDRED AND FIFTEENTH THOUSAND

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TO

MY WIFE

THIS BOOK IS

MOST AFFECTIONATELY

DEDICATED

PREFACE TO THE EIGHTEENTH EDITION

THE scope of the work remains the same. The article on diphtheria has been corrected and brought up to date. The article on teething and hygiene of the mouth has been practically rewritten. The article on socks and shoes has been brought up to date. We are indebted to the Foot Form Shoe Company for many valuable suggestions. Two new illustrations from "Foot Orthopedics" by Otto F. Schuster have been added.

For many corrections and additions pertaining to the teeth and dental hygiene the author is indebted to his son, Robert M. Fischer, D.D.S.

LOUIS FISCHER, M.D.

73 East 90th Street,
New York City.

PREFACE TO THE SEVENTEENTH EDITION

THE GENERAL scope of this book has not been changed. Here and there additions and modifications of feeding methods have been added. A new article on the treatment of feeding and the correction of loose bowels has been added. Likewise, a new chapter dealing with the use of the Ultra Violet Rays and the reason for the general adaptation of the sun treatment is described.

To correct loose bowels and chiefly vomiting, no method has served the author better than the use of one or two teaspoonfuls of thickened farina before each feeding described in chapter 16, page 158.

The use of X-rays to aid in the diagnosis of latent syphilis and especially to record scurvy, and tuberculosis of the lungs is noteworthy. When there is a deficiency of calcium in the bones such as is found in rickets, X-ray will help greatly.

The use of the Ultra Violet Rays and the Sun Rays (Carbon Arc Lamp) is specific in the treatment and cure of rickets and for delayed dentition. Properly used it will cure rickets quicker than any other known method. Several new illustrations have been added among them, one showing the use of the Ultra Violet Rays.

The book is intended to be an aid to the busy physician and is also intended to be a guide for the mother and for the trained baby nurse. The helpful hints contained therein are to be guides especially in emergencies, when traveling, when sudden fever exists, and when the doctor cannot be reached.

Louis Fischer, M.D.

PREFACE TO TENTH EDITION

THE first edition of this work appeared in 1906. In the following ten years, eight successive editions were issued. An increasing demand having called for a tenth edition, I have concluded, after consultation with the publishers, to rewrite and improve most of the chapters, and to add new material. The consequence is that this tenth edition is new in more than the ordinary sense, the matter having been extensively revised, and the type entirely reset.

In the study of an infant we find, broadly speaking, that there are four important steps which will aid in development. They can be designated: a, b, c, and d. A, airing; b, bathing; c, clothing; and d, dieting. These four factors must harmonize or blend so that they may help one another. To intelligently discuss these and to give advice to the mother or nurse anxious to know *how, when,* and *what* to feed, and the proper method of bathing, airing and

clothing to protect, and at the same time, to harden the infant, are the objects of this volume.

One of the most important subjects is discussed in the chapter on Feeding. The home preparation of modified milk is given for the average healthy infant. For the infant who does not thrive on the formula usually required for one of its age—special rules are given for increasing the formula. The diet for a premature or an unusually delicate infant is given, likewise the diet for a dyspeptic infant as well as diet during a diarrheal period is described.

The feeding of a premature or underweight baby is always a difficult problem. A new article on dry milk feeding is added, also a general guide for the management of an incubator baby.

The intelligent supervision of acute infectious diseases such as scarlet fever, diphtheria, whooping-cough is described. While no mother or nurse is expected to supervise the treatment of pneumonia or take the responsibility of supervising an infantile paralysis, many guiding points which the mother or

nurse should know are indicated. The significance of catarrh of the nose and throat, and its association with enlarged tonsils and adenoids is dwelt upon. The frequency of ear trouble as an adjunct to nasal and throat infection is described.

Many practical chapters will be found that are intended as first aids in fever, in injuries, in accidents, and in emergencies—what the mother or nurse should know, and especially what she should do until the physician can be reached.

The training of an infant, especially during its first year, requires good judgment. We should know when an infant is really sick, and when he is spoiled. The correction of bad habits is one of the most difficult duties of the mother. Especial attention has been given to the nervous system, and advice given which will aid in correcting faults and weaknesses. To spank a sick child is a crime, still this is done daily by unthinking mothers and nurses who do not recognize the presence of illness.

The qualifications of a nurse-maid are of the utmost importance, and unless she has

been trained in a hospital, she should familiarize herself with modern sanitary measures. Such details are emphasized in this book. I would call particular attention to the instructions regarding ventilation and the value of the sleeping-porch for hardening, or in the treatment of respiratory diseases.

LOUIS FISCHER.

PREFACE TO FIRST EDITION

THERE are many details pertaining to ventilation, clothing, and bathing which every mother and nurse should know and which they should have in a condensed manual. The physician can not always be at hand to answer questions concerning the many details which the modern mother should know, most especially if she is out of town or if she is traveling. Suggestions and advice for infant-feeding in health, and when the stomach and bowels are out of order, form the most important part of this little work. Directions for the management of fever, and of such diseases as measles, croup, skin diseases, etc., are given. In case of accidents, poisoning, etc., I have given ample advice to be followed until medical help can be procured. The correction of bad habits, and the management of rashes have received careful consideration. Let me hope that the book will serve as a companion to the young mother and nurse for

whose instruction it is intended. I desire to acknowledge my indebtedness to Alice Haehnlen, R.N., for many valuable suggestions.

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PART I

GENERAL HYGIENE OF THE INFANT

For quick reference to every topic treated in this work the reader is urged to CONSULT THE INDEX (pages 241-248) at the end of this book.

CHAPTER I

PRENATAL SUPERVISION AND PRENATAL HYGIENE

WHAT is prenatal supervision?

It is the supervising of the diet and the hygiene, and the regulating of the functions of the various organs of the mother so that her blood-supply given to the unborn infant may be as near to normal as possible.

Can this be done?

It can be done, because the unborn infant is a part of the mother. It receives its blood-supply and its oxygen directly from the mother. All influences, be they unnecessary excitement, psychic disturbances, or poisons in the mother's blood, due to rheumatism or kidney disease, have an ill effect on the unborn baby.

Modern ideas concerning the management of the infant differ somewhat from those which were formerly believed to be necessary.

We frequently have evidences of congenital diseases which may be inherited from either parent. Many an infant prematurely born, or born with some affliction, might have been

normal, if supervisory treatment had been instituted during pregnancy. In giving the history of previous pregnancies, every mother should report not only how many living babies she has had, but also whether she has had any miscarriages. While it may rarely be necessary to make a blood examination (Wassermann Test), in many instances syphilis may be inherited and can only be detected by such blood test. Every mother should report any family or hereditary disease, such as epilepsy, rheumatism, alcoholism, tuberculosis, and other ailments. If necessary, a pregnant woman should be given a diet, with a view to eliminating complications which may arise during the birth of the baby.

Hereditary Disease

Teeth

Every woman's teeth should be inspected during pregnancy, as pyorrhea or diseased teeth, if present, require treatment. When food is masticated and pus oozes from the gums and teeth, the same will be swallowed with the food and enter the system. Diseased tonsils should be cared for, and while it may be unnecessary to remove them, all pus cavities should be cleaned out, and in that way pus be prevented from entering the stomach with the food or during the night.

Kidney disease in the mother is always a grave symptom, and one which requires supervised dieting, proper hygiene, and exercise to

aid in metabolizing the food. All of this has a marked influence on the development of the infant. Oxygenation of the lungs and supplying sufficient oxygen for metabolism is one of the most important points to be considered in the development of the infant *in utero*. Normal metabolism and oxygenation go hand in hand. Waste products require elimination through the kidneys, skin, and bowels in order that the organs may function properly. By this means only can the infant thrive. Toxic poisons, retained in the circulation of the mother, which result in uremia and convulsions, always react on the development of the infant. To give birth to a healthy infant, the mother must receive instructions as to the hygienic care of her body, which consists in bathing, walking, outdoor exercise, proper clothing, and feeding.

I have formerly mentioned the channels through which the body eliminates poisons: the skin, kidneys, bowels, and lungs, and these must be properly supervised to insure systematic working. Great care should be taken to obtain treatment for the correcting of such catarrhal discharges that may be noted in the genital organs. The danger of transmitting an affection to the eyes of the infant should always prompt us to have any discharges examined so that they shall be entirely checked

Catarrhal Discharges

before the infant is born. The slightest hemorrhage on the part of the mother, be it uterine or pulmonary or gastric, should be viewed with alarm. The loss of blood usually means devitalization, and this causes loss of weight in the infant and usually means a feeble or premature baby. All these facts are mentioned, because of the importance of supervision during the prenatal state by physicians who realize the necessity of giving sufficient aid to the mother, so that she may go through her pregnancy normally and not be a physical wreck at the end of the period.

PROPER CLOTHING

No infant can develop unless it has roon to do so. All tight-fitting garments, corsets and useless binders should be discarded. While not going to extremes, the pregnant woman should be instructed to dress comfortably and to dress so that the infant can have ample room. In large cities we frequently find women who have tried to hide their pregnancy with binders and corset waists, giving birth to infants. This always works to the detriment of the infant. Many infants weighing five pounds or less at birth, owe this lack of development to a mother whose idea of pregnancy is that pregnancy is a crime and that no one should know of it.

Hiding Pregnancy

THE SUPERVISION OF THE BREASTS

The greatest privilege of motherhood is the ability to nurse her infant. Mother's milk insures the best food that nature can offer and usually means the best foundation upon which an infant's life can be built. Each prospective mother should be so instructed that her breasts, and especially the nipples, are supervised during pregnancy and are ready to nurse her infant.

It is important to inquire into the ability and willingness to nurse the baby. Every mother should be instructed in the importance of giving her baby a solid foundation, which can best be attained by nursing it herself. The well-known resistance to the acute infectious diseases, and especially to tuberculosis, are sufficient reasons for insisting on giving human milk in preference to modified cow's milk.

MATERNAL IMPRESSIONS

Shock, fright, and sudden excitement during pregnancy, have been known to result in psychic disturbances in the newly-born. As a rule, nervous manifestations such as St. Vitus's dance have been believed to result from nervous shocks during pregnancy. Mongolian idiocy and cretinism are supposed to

result from psychic disorders of the mother during her pregnancy.

Many maternal impressions supposedly caused during pregnancy have nothing to do with this condition. The oversensitive central nervous system of the pregnant woman will magnify happenings during her pregnant state, but the large majority of the so-called maternal impressions can not be substantiated, and have nothing to do with the pregnant state.

CHAPTER II

THE NURSERY

VENTILATION

SUNLIGHT—ULTRA VIOLET RAYS

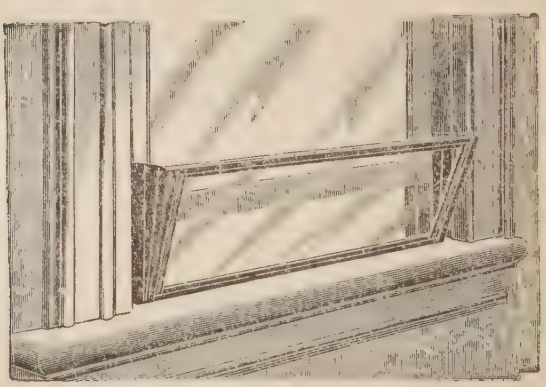
THE first requisite in a nursery is a plentiful supply of fresh air. This is needed by the normal baby weighing 7 lbs. at birth as well as by the premature baby weighing 5 lbs. or less at birth.

Just as plants require sunlight and oxygen, so do infants require thorough oxygenation of their lungs, in order to build good blood and to thoroughly digest their food.

Infants always sleep better in a room having fresh air than in a warm, stuffy room with stagnant air. The temperature of the room should be maintained at about 70°. When infants are under weight and have cool extremities, they should be protected with an oil rub and by blanketing the body. A baby confined to a room with hot air is far more likely to catch cold when taken out of doors than one accustomed to be in a room with fresh, cool air. The nursery should be thoroughly ventilated.

Fresh Air

Fresh air should be admitted to the nursery from windows communicating with the street or yard. Airshaft ventilation must never be permitted. If the nursery has an open fireplace, fresh air can be admitted constantly. A window-board or window-box may be used to admit



IDEAL WINDOW VENTILATOR

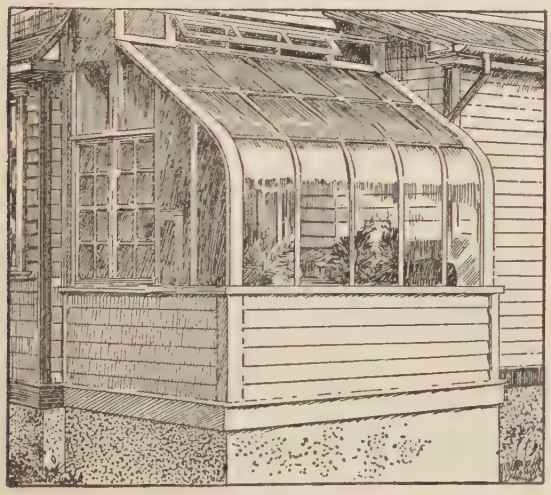
Made by Ideal Ventilator Co., 71 Murray St., New York. This is a glass ventilator which can be adapted to fit any window. Air currents are diverted upward and so do not occasion draughts. It is especially adapted for ventilating the sick room where plenty of fresh air is required.

air. This window-board is a strip of wood five inches high and the width of the window. The lower sash is raised and the board inserted. This makes a space between the two window sashes through which the air can gradually enter the room.

Night Air

Night air is fresh air and should be ad-

mitted to the nursery. Children deprived of fresh air at night are more sensitive and, hence, contract cold in the head and "sniffles" more readily when taken out of doors. At night the nursery can be ventilated by having



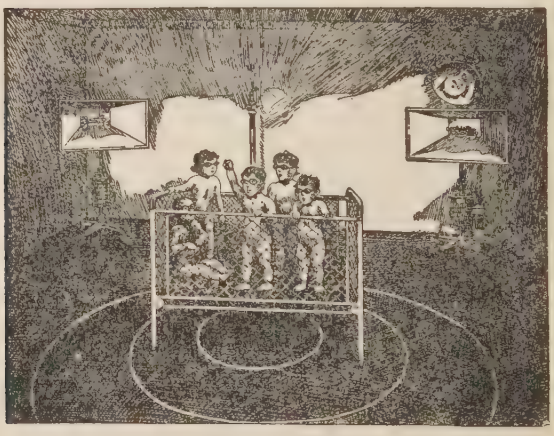
VITA RAY SUN ROOM

a window open in an adjoining room, or, if the weather is not too cold, the window furthest from the baby's bed may be left open, and a screen properly placed to prevent any possible draught. Give the baby plenty of breathing room by placing the screen away from the bed, not against the bed, as frequently seen.

Sunlight, as we receive it on this earth con- **Sunlight**

sists essentially of three distinct forms of energy, two of which are invisible and only one which is visible. The three different forms of energy which we receive from the sun are heat, or scientifically known as infra red energy, the visible light and the ultra violet. The infra red energy produced by the sun is felt by the human being as heat. The visible light, which we get in the daytime in practically all seasons of the year, is also important to life. We see this much more readily in plants. If we should take a potato and let it sprout in a dark, warm, damp cellar, it will send forth white shoots. These white shoots will grow until the energy stored up in the potato is exhausted. Let us take this potato with its white shoots and place it in the

Ultra Violet Rays



ULTRA VIOLET RAYS

sunlight and the white shoots will turn green. People who have been kept in dungeons, in the darkest of dungeons for years, soon become yellow. Their skin becomes dry and they lose the healthy appearance of the normal person.

The third portion of the sun spectrum is the ultra violet. This ultra violet is a valuable vital part of sunlight. It is this portion that makes it possible for the bones to develop in children. The absence of ultra violet generally causes rickets and other diseases. The presence of ultra violet brings the child to normal health quickly if other conditions are favorable. This ultra violet portion of the sun is invisible.

Ordinary window glass does not permit the ultra violet rays necessary to prevent or cure rickets to penetrate. It is true that the sun rays will enter a room but the curative zone of the spectrum in the sunlight does not enter. There are many kinds of glass on the market, chief of which may be mentioned the Vita Glass [1] and the Corning Glass [2] which transmits about 90% of the sun's rays. Infants exposed through ordinary glass do not tan, but when exposed through the Vita Glass, the ultra violet rays enter and this causes the tanning.

Artificial sun lamps are of great value. Two types of lamps are commonly used to-day; one,

[1] Orcutt & Co., Elizabeth, N. J.
[2] General Electric Co., Schenectady, N. Y.

the Tropico Sun Lamp [3] which is a carbon arc lamp; and the well-known Quartz Lamp which generates the ultra violet rays, known also as the Mercury Vapor Lamp.[4]

Heating the Nursery

Most of our city houses and apartments are heated by means of a hot-air furnace or with steam-heat. When steam-heat is used, we must have boiling water over the furnace so as to give moisture to the air. The best method of heating is by means of an open fire. Gas-stoves should never be used in the nursery. If additional heat is necessary during the bath, an oil-stove should be used.

The Temperature

During the day the temperature of the nursery should be between 65° and 70° F., never more. During the night it should never be over 65° F., and should be gradually reduced so that when the baby is about one year old it will not be over 60° F.

The nursery should be a large room having plenty of fresh air and sunlight. Everything in the nursery should be washable; the walls, if possible, should be painted instead of papered; the furniture should have no upholstering; the floor should be of hardwood, or closely boarded and covered with a few rugs that may be cleaned with a damp cloth.

The Bed

A brass or iron bed without any hangings

[3] Harold Surgical Corp., 204 East 23d Street, New York City.
[4] Hanovia Chemical & Mfg. Co., Newark, N. J.

should be selected. The bed should be one having a good woven-wire mattress; no matter if the knobs and scrolls are not fancy. On the top of this wire mattress place a heavy blanket folded so as to fit the bed, or a hair mattress. (I prefer a blanket, as this can be unfolded and aired daily, and occasionally washed.)

Cover the mattress first with a rubber sheet, second a cotton sheet, third a quilted pad. On this pad the baby is laid and covered first with a cotton sheet, second with light-weight wool blankets and as many as are required for the temperature of the room. Down comforters may take the place of blankets, as they are much lighter in weight.

The pillows should be filled with hair, never with feathers or down, and should never be more than three inches high.

Airing the Bed

The blankets or comforters should be hung on the line for a good airing every few days. The bed should not be made as soon as the baby is taken up in the morning, but the bedclothes should be spread apart daily until thoroughly aired. Sheets or pads that have once been wet must be changed for fresh ones. Never put the baby in a cold bed, but see that the sheets are warmed by means of hot-water bags before the baby is placed there.

The selection of a nurse-maid is a very im-

portant matter. It is important because the infant lives with the nurse and usually sleeps in the same room. The nurse feeds, dresses, and bathes it. She is consequently associated with it almost as much, if not more than, the mother.

Every infant should sleep alone. While the nurse or maid may sleep in the same room she must not be permitted to take the infant into her bed. Leucorrhœal discharges from a nurse can be transmitted to the infant by infected bedclothes, and give rise to infection resulting in leucorrhœal discharge, or catarrh of the eyes.

The Nurse Maid

Do not select a nurse who suffers with catarrh or throat trouble. It is important to see whether her tonsils are enlarged, for a sufferer from chronic tonsilitis can easily infect the infant. You should know that her lungs are normal, that she has no chronic cough, and no evidence of tuberculosis. A skin disease or eruption should always be looked upon with suspicion, it may be an innocent rash or it may be syphilis. Her teeth and gums should be examined. If pus exists at the roots of her teeth, a mouth infection can be transmitted to the infant by a kiss. A health certificate from a physician should be requested.

If possible, select a nurse who has been trained in a hospital devoted to the care

of infants. She should be a woman between twenty and forty years of age, one who is quiet, mild-mannered, and who does not "know everything." Experimental feeding, as frequently tried by the nurse, is responsible for more rickets and weak children than any other method of rearing children. The nursemaid should wear a dress or uniform that may frequently be washed. She must take orders from the physician and mother. It is the mother's place to instruct the nurse-maid. The nurse-maid should be instructed to wash her hands in soap and water after handling soiled napkins. It is absolutely essential that she scrub her hands in soap and water, and brush her finger-nails before touching the feeding bottles, and handling the nipples. Neglect to do this may be the means of carrying germs or particles from the napkin to the nipple thus contaminating the feed, or giving baby a sore mouth.

Toys

In selecting toys for the baby, those made of ivory or rubber are to be preferred. Select the best quality of pure rubber and avoid those whose colors rub off. Avoid all "woolly lambs" and "woolly dogs," as the baby is sure to get some of the fluff into its mouth, which will cause gastric disturbance. Wooden blocks that can be washed, not those covered with paper, should be given to the baby.

CHAPTER III

BATHING AND CARE OF THE NAVEL

BATHING

The First Bath

THE first bath given to the baby should be an oil or vaseline bath. Soon after the baby is born the body should be anointed with warm olive oil or warmed vaseline. This oil can be applied with a large cotton wad. By this means we can remove the cheesy covering, called vernix caseosa, with which the baby is born. The oil bath serves the double purpose of cleaning the skin and lubricating the body so that the chilling of the body is prevented. An oil bath should be given daily until the navel cord has dried and fallen off.

The Tub Bath

This usually happens between the fourth and eighth days. The first tub bath may now be given. *Requisites for the Tub Bath are:* A warm room, temperature 70-72° F.; papier-maché bath-tub on a low table; a basin of fresh warm water; two soft sponges or wash cloths; two large soft towels; a bath thermometer with wooden case; olive-oil soap or superfatted soap; a powder shaker containing pure talcum powder; several toothpicks on which a

little absorbent cotton is twisted; a soft brush and fine comb; a large flannel bathing apron. A very satisfactory method of bathing the baby is by means of a combination cold and hot shower. This can be gradually cooled by turning off the warm water so that if we rinse off the soap with lukewarm water, we can follow it up with cold water and a brisk rub. At the Infantorium this method is used to very good advantage.

Temperature of Bath and Room

When giving the baby a bath, see that the temperature of the room is between 70-72° F. Place the tub where there is no possibility of a draft, or avoid drafts by means of screens. Never place the tub on the floor, but always on a low stand or table. For a very young infant have the temperature of the bath between 98-100° F. As the baby grows older, gradually lower the temperature so that when the baby is one year old the temperature is between 85-90° F. Always use a bath thermometer, never guess at the temperature, as the water will feel very much warmer to the sensitive skin of the baby than to a hand accustomed to hot water.

How to Give the Bath

After everything is prepared for the bath, and the fresh clothing for the baby is warmed, tie on the large flannel bathing apron. Undress the baby and take it on your lap. After bathing the face with the fresh water from the basin, soap the

cloth and carefully wash the head and scalp. Dry the face and head thoroughly. The entire body is now carefully bathed with soap and warm water from the basin. Keep the baby wrapped in the flannel apron as much as possible while this is being done. Now lift it gently into the fresh warm water in the bath-tub. Use a fresh cloth and thoroughly rinse off all soap. After remaining in the tub for two or three minutes the baby should be lifted out of the tub and placed on the warm towels which have been prepared on the bed. Wrap a towel around it and pat gently till dry. Use the second towel to dry all the little folds of flesh, under the arms, at the neck, between the thighs, etc. Lift the baby from the damp towel on to a dry blanket, rub it with alcohol, and dust a little talcum powder on the neck, behind the ears, under the arms and knees, in the groin and on the buttocks.

Drying

When too much powder is used between the folds of the skin it will irritate, causing itching and excoriation. This will provoke scratching and may lead to the formation of a bad habit—masturbation.

Cold Spray or Hardening

As the baby grows older it may remain in the bath longer—from five to ten minutes, especially during the summer. After the morning bath it should receive a dash of cold water over the spine. This had better be given

by means of a large sponge saturated with cold water. While the baby is still seated or standing in the bath water, this saturated sponge should be held at the back of the head, the water squeezed out and allowed to run down the back. By the use of cold water we contract the blood-vessels and prevent chilling of the surface. This plan is most admirably adapted for hardening the baby, thus preventing it from taking cold easily.

The Foreskin

All modern obstetric hospitals in New York City and in the larger cities, circumcize all boys at birth. If the baby is a boy the foreskin should be pushed back every day and the parts carefully washed with cotton and warm water, removing all white particles collected there. At times the use of borated vaseline is necessary. When it is impossible to push the foreskin backward and cleanse the parts, then pieces of smegma may cause the trouble and it will be necessary for the physician to force the foreskin backward to remove the smegma. When this is impossible circumcision will be necessary.

The Scalp (Milk-Crust)

The scalp need only be washed two or three times a week, unless it is covered with greasy scales (milk crust) as is quite common; then it should be washed every day and rubbed with melted cocoa butter. When milk crust persists, it should be rubbed with borated vaseline

at night and the crust removed with alcohol the following morning.

After the baby is dressed its nose and ears should be cleaned by means of wooden toothpicks on which a little absorbent cotton is twisted, care being taken to see that the end is well covered. Dip the covered end of one of these toothpicks into a solution of boric acid and insert into the nose; by gently moving it around the nostril remove as much of the secretion as possible. Clean the ears in the same manner, but use a freshly mounted toothpick for each ear and nostril.

Boric Acid Solution

Boric acid solution for the baby's toilet is made by adding a teaspoonful of boric acid powder to a pint of boiling water, or it can be bought from the druggist by asking for a 2 per cent. solution of boric acid.

The Mouth

Disease germs such as are found in Grippe, Diphtheria, Scarlet Fever and the very common pus germs, such as the streptococcus or the staphylococcus, are found everywhere in dirt on floors, and when the infant plays on the floor, it frequently carries into the mouth the above disease germs. The hygiene of the mouth becomes a very important part of the routine of the infant's life. Unless the mouth is kept clean and the teeth and gums brushed, an infection can take place. Good brushing with a medium soft brush dipped

in bicarbonate of soda and water, or a pinch of table salt and water after eating will cleanse the teeth, and at the same time neutralize products of fermentation which may lodge in the mouth. A drink of water is an excellent way of cleansing the mouth. The old fashioned method of cleansing the infant's mouth after taking its bottle has been discarded. The delicate structure of the mouth will not tolerate rubbing, and we frequently do harm rather than good by the forcible use of cotton or cloth, as it breaks the surface and permits disease germs to enter. It is safer to have a dentist examine and supervise the teeth several times a year unless decay requires treatment. The baby should receive daily washings of its mouth by giving it a drink of water after each feeding.

The Teeth

When the teeth are present they should be kept clean. Neglect of the teeth will result in caries and foul breath; particles of milk sometimes remain between the teeth, turn acid, and so destroy the enamel of the teeth. Baby's teeth are best cleaned by means of a small piece of cotton dipped in a weak solution of bicarbonate of soda and water. The teeth of older children may be cleaned with a brush and a teacup of warm water to which half a teaspoonful of table salt has been added.

The Eyes

To cleanse the eye dip a small pledget of

cotton into a 2 per cent. boric acid solution. Hold this cotton near the eye and squeeze the cotton, letting a little of the solution fall on the eyelid. Let it remain for a few moments; do not attempt to open the eye as the solution will trickle there itself; wipe, but do not rub, the eye gently toward the nose with a dry piece of cotton, using a fresh piece of cotton for each eye.

The Nails and Hair

If it is necessary to shorten the nails they should be cut, not bitten off, before the baby is bathed. After the bath any remaining foreign matter under the nails may be removed with a wet toothpick.

The hair should be brushed with a soft camel's-hair brush.

When to Bathe

It is well to give the bath just before putting the baby to bed and before the evening feeding. It makes it sleep better and there is no danger of its catching cold by being carried about. Never give a bath directly after a meal or just before the baby is to be taken out. In the morning one hour after feeding it may have a sponge bath. During the summer months the baby may have a tub bath (one minute dip) in the morning in addition to the evening tub bath. There are four channels by which impurities can be removed from the body; they are: 1. The skin; 2. The kidneys; 3. The intestines; 4. The lungs.

To remove impurities through the skin, the pores must be kept open. This can only be attained by bathing. Besides cleansing the skin the bath exerts a very soothing influence on the nerves. Very nervous children will appear more calm after a bath, so that children who are restless at night will be strengthened and soothed by this simple means.

Sensitive or Chafed Skin

If the baby's skin shows a tendency to be red and chafed then it is advisable to use no soap at all, but an ordinary bath or an oatmeal bath made in the following manner will be found advantageous:

Oatmeal Bath

Tie one pound of oatmeal into a bag made of cheese-cloth. Place this bag in the baby's bath-tub; let it soak in hot water for about one-half hour, and then add enough water to bathe the baby. The duration of the bath should be from five to ten minutes; the temperature of bath 95° F.

When to Stop Bathing

Do not bathe the baby if it has an eczema or a very reddened skin. (Read also the article on Eczema on page 209.) Do not bathe it if an eruption is present, unless the eruption is due to an irritant applied to the skin. Turpentine, mustard, and camphorated oil, when rubbed into the skin, will cause an eruption resembling scarlet fever. Under such conditions the bath may be used. When fever develops the bath may be continued, provided

there is no eruptive disease like measles or scarlet fever. When baby has a cough or catarrhal manifestations, it is advisable to discontinue the bath for a few days.

CARE OF THE NAVEL

The nurse in charge of the baby must thoroughly wash her hands and clean her nails before touching the cord.

At Birth

Dry dressing only should be used. The cord should be dusted with aristol powder and wrapped in several thicknesses of sterilized cheese-cloth. A clean dressing should be renewed daily until the cord falls off.

After the Cord Falls Off

Sprinkle talcum powder into the navel and cover it with several layers of cheese-cloth o. linen, over which apply the bellyband.

Sore Navel

If proper cleanliness has not been observed inflammation of the navel will result. If such is the case, the skin surrounding the navel will appear reddened and an oozing or discharge of pus follows. The physician's attention must be directed to this condition, the neglect of which may result in blood-poisoning.

Rupture of the Navel

When baby strains very hard to have a movement of the bowels a rupture of the navel sometimes follows. This protruding mass feels soft, and a distinct gurgling sound can be heard when it is replaced or pushed back by the finger. Straining during constipation

or straining during continued diarrhea may cause this condition. Violent coughing spells such as occur in whooping-cough may also cause this rupture. A snug-fitting abdominal binder evenly placed will support the abdomen and hold this rupture in place. It is best to consult the physician the moment the rupture is noticed. Until then a strip of zinc-oxid adhesive plaster 1½ inches in width should be tightly drawn around the body covering the rupture.

CHAPTER IV

CLOTHING

DURING the first few months of a baby's life it needs comparatively few clothes. Nowadays, it generally proves a better investment in the end to purchase ready-made garments, than to buy the material and have the garments made. In some of the large department stores that specialize in infant's wear, attractive material can be bought that is already cut out, with full directions for putting the garment together by hand.

The new-born baby requires the following clothing: During the day, a flannel band; a diaper; socks; a long-sleeved shirt; a flannel pinning blanket; a white dress. At night, a flannel band; a long-sleeved shirt; a diaper; a flannel night-dress.

The Flannel Band

The flannel band should be long enough to reach twice around the baby's body and should never be more than four inches in width. It will interfere with the breathing if brought up too high. It should have no seams or hems to cause uneven pressure, as it must fit snug, but not too tight. This band should always be closed on the left side; whenever

BABY'S FIRST OUTFIT

possible it should be closed by basting with needle and thread. If the baby is restless and this can not always be done, then it may be fastened by using four of the smallest size safety pins.

The Knit Band

This flannel band should usually be discarded after the baby reaches the age of three months. When this band is discarded, a lisle or knit silk and wool band should be used in its place. This band is held in position by means of two shoulder straps and diaper tabs.

The Diaper

The diaper should be made of soft bird's eye cotton or linen. Cheese-cloth and outing flannel are not suitable for diapers. Both materials cause the baby to become chafed. For a very young baby it should be made about eighteen inches square and folded but once. As baby becomes older a larger size diaper becomes necessary; a size about twenty-two inches wide and forty-four inches long will be required. This larger diaper is folded twice. Knitted or stockinette diapers are light, porous, and elastic and yield to all strains and motions of the body; they can be bought in the stores. I especially recommend them for children after they are placed in the sitting position.

Never place a small, folded diaper inside of the regular diaper; this would cause too much thickness between the baby's legs, and

might cause the legs to assume a bowed appearance, especially if the bones are soft and bend easily. The baby should never have more than two thicknesses of cloth between his legs.

Quilted Diaper Pad

To protect the skirts from the excess of urine, a quilted diaper pad about twelve inches square can be laid directly under the baby after he is diapered, and the skirts then arranged over this pad. This pad should never be tied by means of strings around the baby's waist as is so often seen, as this brings the weight on the hips. By careful handling the pad will remain in position when the baby is taken in arms. Never resort to a rubber diaper, for sanitary reasons.

The diaper once wet must never be dried and used again, for unless the baby is perfectly normal the urine may contain substances which will irritate the buttocks and thighs, thus causing redness and chafing. At times eczema will result from constant irritation. When there is redness and irritation of the buttocks, or genitals, do not use soda or strong soap in washing the diapers, use only olive-oil or castile soap, and no bluing, dry in the open air and sun, never in or near the nursery.

Paper Towels

Paper towels, recommended for traveling, can be bought in most large department stores. This towel paper is extremely soft, and is manufactured under sanitary conditions which

exclude everything that might chafe or irritate the baby's skin. It is placed inside of a regular diaper, thus preventing the cotton fabric from becoming soiled. When a towel is soiled it can be thrown away; it will not clog the plumbing.

The Shirt

Over the band a lisle or light-weight silk and wool shirt is worn in summer, a second weight silk and wool shirt in spring and fall, and a third or heavier weight in winter. The fourth or very heavy weight shirt found in our stores should never be used in our climate. Silk and wool shirts should be used because they are light in weight and wash well. Woolen materials shrink and become hard in washing. A combination of silk and wool, no matter how often washed, remains soft, retains its original size and shape and gives freedom with every motion of the baby's body.

Pinning Blanket

Next comes the pinning blanket. This is always made of light-weight flannel, and made after the regular skirt pattern, only that it is left open in the back the full length of the skirt, thus making it more convenient in handling the baby, changing the diaper, etc. This pinning blanket may also be modeled after the popular "Gertrude" pattern. After the pinning blanket is closed, the skirt part is folded, and turned up at the bottom and pinned with several safety pins, so as to reach just above

the hem of the dress. This will keep the cool air from the baby's feet and at the same time give it plenty of room to kick or move its limbs.

Flannel Skirt

When baby is put into short clothes, about the age of five months, a short flannel skirt, on a flannel body in winter, on a cotton body in summer, takes the place of the pinning blanket. Over the flannel petticoat mothers usually insist on putting a white petticoat because it "looks better." This is not necessary and only adds more weight to the baby's clothes.

The Dress

The dress, skirts, and band are slipped over the infant's feet, never over its head. On cold days the baby should wear a dress of flannel or a flannel or cashmere sack over the white dress. The baby's clothes should be made plain, avoiding all ruffles, plaiting, and useless trimmings; allow only enough fulness for comfort; select fine, soft materials, and when trimming is considered indispensable, use laces instead of embroideries.

Wrappers and Blankets

It is advisable to have several light woolen wrappers which can be quickly slipped on the baby whenever necessary. Knitted wool blankets are more serviceable than the bought woolen blankets for wrapping baby, as they are light in weight and can be more easily

washed, more quickly dried and remain softer than the woven blankets.

Baby's Foot Coverings

The time at which a baby shall begin to wear shoes is governed by progressiveness rather than by age. Previous to baby's walking: broad toed, closely woven, light weight, woolen socks, amply large, should constitute the only foot covering. Baby's shoes should be laced to permit easy adjustment. The upper should be of soft pliable leather and the soles extremely flexible and slightly extended to permit a broad tread during baby's first few weeks of uncertain walking. Patent leather should not be employed. Pointed shoes *must* be avoided.*

Fitting of Shoes

Baby's feet must never be cramped in tightly fitting shoes or socks as the bones are not ossified in childhood and are easily molded into deformities. Shoes should be fitted broad enough to allow full expansion of the foot on weight bearing and long enough to admit of some elongation and from two to three months growth. The toes should come fully one inch from the end of the shoe upon weight bearing. Shoes should fit snugly through instep and heel. Lacings should not meet and shoes should not be laced too tightly.

Low Shoes

Low shoes are sometimes advised as they are presumed to permit normal muscular action than if the ankles were encased in high shoes.

* See Figure 2.

We are inclined to favor high as they can and should be laced loosely to allow of this and at the same time insure baby against kicking them off and irritating the heels by rubbing.

Corset Shoes

Corset shoes should be judiciously employed as the commonly called "weak ankles" for which they are usually prescribed is in reality secondary to the real disturbance, weak foot, and cannot be corrected by lateral pressure at or above the ankle as given by these whale bone side shoes.

Moccasins

Moccasins are commonly advised and are not objectionable provided one is obtained with an extension sole and a stiffer than usual moccasin counter. Our experience has been that the usual moccasin, void as it is of a counter, prevents the foot from resting flat in the shoe and tends toward wrinkling greatly at the heel thereby becoming a disturbing factor by interfering with the normal tread.

When to Shorten the Clothes

The baby's clothes should be shortened when it begins to kick or show signs of wanting to use its limbs—this is about the fifth month. It is not wise to make this change during cold weather. If the baby is born in July it is better to shorten the clothes in October, the beginning of the fourth month, rather than wait until November and make the change during very cold weather.

The baby should always be dressed while

2. ABNORMALITY DUE TO FAULTY WEARING APPAREL. STOCKINGS OR SHOES.

Courtesy of Otto F. Schuster and Maurice J. Lewi, M.D. (Foot Orthopedics)

1. NORMAL FOOT ANATOMICALLY CORRECT.

Courtesy of Otto F. Schuster and Maurice J. Lewi, M.D. (Foot Orthopedics)

lying on its back on a soft bed or a pillow. Very little or no turning of the baby is necessary. The band, as said before, may be slipped over the feet, the body gently raised by grasping the feet, the arms slipped through the shoulder straps and the band then slips into place without turning the baby. The skirts and dress are laid together and slipped over the legs at the same time; after the sleeves are gently worked over the arms the baby is turned on the right side and the skirts and dress are closed. If a sack is required the left arm can be slipped into the sleeve while the baby is still on the right side; one more turning of the baby to the left side will permit the right arm to be slipped into the right sleeve.

Position of Baby While Being Dressed

When the baby has on the right amount of clothing its limbs will be pink or the skin mottled. They should not be bluish, as they usually are when the baby is not dressed warm enough. In special cases, where, for example, heart-disease exists, continued blueness of the limbs is found. Such cases require careful medical supervision.

When Comfortably Dressed

When the baby is too warmly dressed perspiration will result. This has a weakening effect, besides producing a sensitive skin, which means less resistance and a liability to take cold easily.

When too Warmly Dressed

A baby under twelve months is put to bed

Night Clothing

with a shirt, a diaper, and a flannel or flannelette nightdress, which is made long enough to allow the hem to be gathered on a drawing-string. This will insure the baby's feet being covered even tho the outer covering be kicked off.

After the baby discards the diaper at night, night-drawers, which will be found more serviceable and comfortable, may be worn. These can be made of canton flannel or can be bought made of stockinette.

Street Clothing

When the baby goes out of doors it needs, in addition to the regular house clothes, a long woolen or wool-lined coat with shoulder cape as an extra protection; a silk cap with heavy lining; woolen mittens; a lace veil (bobbinet), which may be worn on very windy days or when asleep in the carriage. A woolen veil should never be worn, as there is danger of the baby swallowing some of the fluff. After the baby is in short clothes, leggins will be necessary in cold weather. During the summer a piqué coat and a thin lace cap are all that is necessary.

CHAPTER V

WEIGHT, HEIGHT, AND GROWTH

Height

THE average height of the new-born male is from 19½ to 20 inches (about 50 centimeters); of the female from 19¼ to 19¾ inches (about 48.5 centimeters). A child grows most rapidly during its first year. The increase during the first year is 5 to 6½ inches; second year, 2½ to 3½ inches; third year, 2⅓ to 2⅔ inches; fourth year, about 2 inches; fifth to sixteenth year annual increase from 1½ to 2 inches; sixteenth to seventeenth year, 1½ inches; seventeenth to twentieth year, 1 inch yearly.

The Weight

The baby should be weighed at regular intervals. Nothing else tells so accurately whether or not it is thriving. For the first year the baby should be weighed every week; during the second year, every two or four weeks will be sufficient. The best time to weigh the baby is when it is undressed, just before its bath.

WEIGHT

The baby should be weighed in the same scales each time. The scales must be accurate.

Scoop scales are best adapted for young infants. When weighing the baby, undress it and wrap it in a small blanket and place it in the scoop of the scales; balance the scales and note the amount; then remove the baby

TABLE

AVERAGE NET WEIGHT, HEIGHT AND CIRCUMFERENCE OF HEAD AND CHEST OF HEALTHY CHILDREN FROM BIRTH TO FOUR YEARS

Age	Sex	Weight		Height		Chest		Head	
		Pounds	Kilos	Inches	Cm.	Inches	Cm.	Inches	Cm.
Birth	Boys	7.55	3.43	20.6	52.5	13.4	34.2	13.9	35.3
	Girls	7.16	3.26	20.5	52.0	13.0	33.0	13.5	34.3
6 Months	Boys	16.0	7.26	26.5	67.3	16.5	41.9	17.0	43.2
	Girls	15.5	7.03	26.0	66.0	16.1	40.8	16.6	42.3
12 Months	Boys	21.0	9.54	29.5	75.0	18.0	45.7	18.0	45.7
	Girls	20.5	9.31	29.0	73.7	17.5	44.5	17.5	44.5
18 Months	Boys	24.5	11.13	32.0	81.2	18.7	47.8	18.6	47.5
	Girls	24.0	10.90	31.4	79.8	18.2	46.2	18.0	45.7
2 Years	Boys	27.3	12.40	34.0	86.3	19.3	49.1	19.2	48.7
	Girls	26.5	12.04	33.4	84.8	18.8	48.0	18.6	47.5
2½ Years	Boys	30.0	13.63	36.0	91.5	19.8	50.4	19.5	49.5
	Girls	29.0	13.18	35.3	89.7	19.3	49.1	19.0	48.2
3 Years	Boys	32.5	14.77	37.5	95.4	20.3	51.5	19.8	50.4
	Girls	31.5	14.31	37.0	94.2	19.8	50.4	19.4	49.3
4 Years	Boys	36.8	16.72	40.5	103.0	20.8	52.8	20.0	50.8
	Girls	35.3	16.04	40.0	101.6	20.3	51.6	19.7	50.2

RELATION OF WEIGHT TO HEIGHT

BOYS				GIRLS			
Height, Inches	Weight Pounds	Increase Per Inch, Pounds	Approx. Age, Years	Height, Inches	Weight, Pounds	Increase Per Inch, Pounds	Approx. Age, Years
42	41.8	..	5	42	40.9	..	5
43	43.6	1.8	..	43	42.6	1.7	..
44	45.6	2.0	..	44	44.5	1.9	..
45	47.6	2.0	6	45	46.5	2.0	6
46	49.6	2.0	..	46	48.5	2.0	..
47	52.1	2.5	7	47	50.7	2.2	7
48	54.6	2.5	..	48	53.2	2.5	..
49	57.3	2.7	9	49	56.1	2.9	9
50	60.2	2.9	..	50	58.8	2.7	..
51	63.2	3.0	10	51	61.4	2.6	10
52	66.3	3.1	..	52	64.4	3.0	..
53	69.2	2.9	11	53	67.5	3.1	11
54	72.7	3.5	..	54	71.0	3.5	..
55	76.4	3.7	..	55	74.9	3.9	..
56	80.2	3.8	12	56	78.8	3.9	12
57	84.0	3.8	..	57	83.4	4.6	..
58	87.9	3.9	13	58	87.9	4.5	..
59	91.6	3.7	..	59	93.3	5.4	13
60	95.5	3.9	..	60	98.8	5.5	..
61	100.5	5.0	14	61	105.4	6.6	..
62	105.6	5.1	..	62	115.7	10.3	14
63	110.7	5.1	15	..	....	...	..
64	115.9	5.2	..	..	....	...	..
65	121.0	5.1	16	..	....	...	..
66	126.6	5.6	..	..	....	...	..
67	136.1	9.5	..	..	....	...	..

AVERAGE ANNUAL INCREASE IN WEIGHT AND HEIGHT

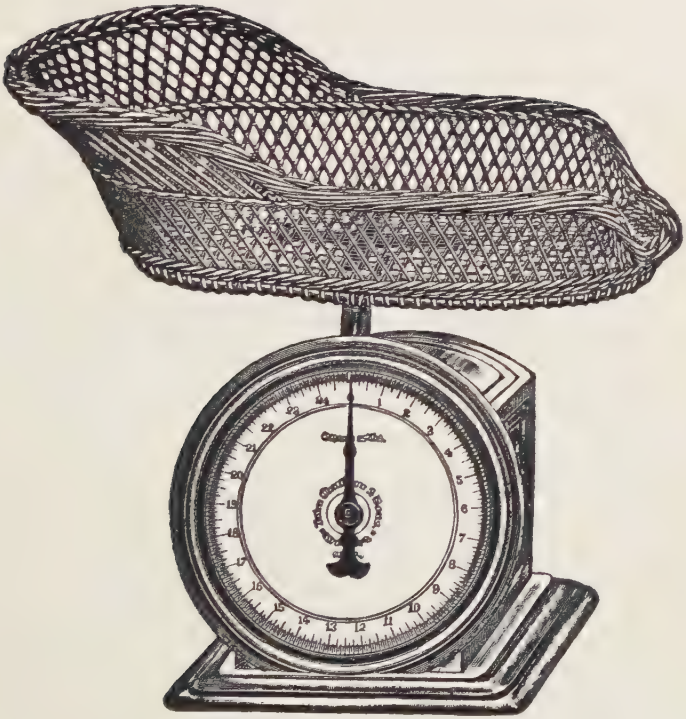
Age	BOYS		GIRLS	
	Pounds	Inches	Pounds	Inches
5 to 6 years	4.0	2.0	4.0	2.0
6 to 7 years	4.0	2.0	4.0	2.0
7 to 8 years	4.75	2.0	4.5	2.0
8 to 9 years	5.25	2.0	5.0	1.75
9 to 10 years	6.0	2.0	5.25	2.25
10 to 11 years	5.0	1.7	6.5	2.0
11 to 12 years	6.5	1.8	9.5	2.5
12 to 13 years	8.0	2.0	10.5	2.0
13 to 14 years	10.0	2.5	9.5	2.0
14 to 15 years	12.5	2.7	7.5	1.25
15 to 16 years	13.75	2.7	6.0	0.75
16 to 17 years	6.5	1.2	3.5	0.50
17 to 18 years	5.0	0.5	0.5	0.20

and after dressing it, weigh the blanket in which it was wrapped; deduct the weight of the blanket from the total and the remainder will be the weight of the baby.

Normal Gain

The average healthy baby weighs from seven to seven and one-half pounds at birth. A few ounces are generally lost during the first week. These are made up during the second week and then the baby should gain at the rate of four to eight ounces each week up to the sixth month. The gain from the sixth to the twelfth month is less, usually from two to four ounces a week.

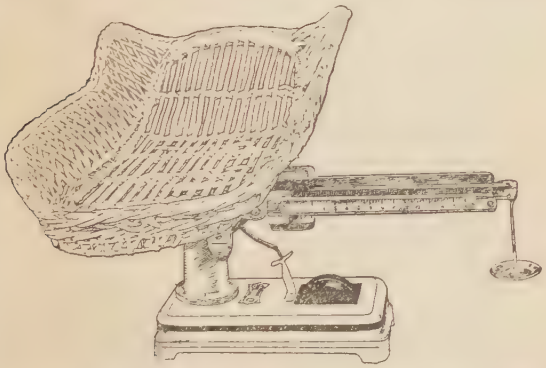
A healthy baby properly fed does not lose in weight. There are times when the baby



BABY'S SCALES

will gain very slightly and probably for a few weeks not at all, and still be in a healthy condition. During fever and during very hot weather when the appetite is poor, infants lose in weight.

It is remarkable to see the influence of rest and sleep on the weight of infants. This applies to breast-fed as well as to bottle-fed



THIS IS A VERY PRACTICAL SCALE IN USE IN THE PREMATURE WARD OF THE INFANTORIUM

infants. Continued crying and wakefulness exert a deleterious influence on metabolism. Infants so affected do not gain or gain very little in weight. It is important, therefore, to see that flatulence does not exist. A distended colon will keep the infant awake and crying. As a rule it is the carbohydrates, chiefly the sugar, that cause the disturbances. Sleep may

be promoted by giving the infant a warm bath at night; keeping the feet and body warm, even tho the room is cool, is also necessary to insure comfort.

RECORD OF A HEALTHY BABY
BREAST-FED

Age	*Weight Pounds*
Weight at birth	7½
Weight at 1 month	9
Weight at 2 months	11¼
Weight at 3 months	12½
Weight at 4 months	13¾
Weight at 5 months	15
Weight at 6 months	16¼
Weight at 8 months	18¼
Weight at 10 months	19¾
Weight at end of 1 year	21
Weight at 1 year 3 months	22
Weight at 1 year, 6 months	22½
Weight at 1 year, 9 months	24
Weight at end of 2 years	26

Some babies fed on prepared infant foods or on foods containing a great deal of starch, will gain rapidly in weight.

A normal baby usually doubles its weight at the end of the fifth month, and by the end of the first year weighs three times its weight at birth. Taking seven pounds as the average weight for an infant at birth, it should weigh

fourteen pounds at the end of the fifth month and twenty-one pounds at the end of the first year.

Weigh Infant Before and After Nursing

If an infant is underweight, or dyspeptic, or suffering from intestinal trouble, weighing it every day for several weeks may be necessary until we are sure that it is gaining regularly and systematically. If the infant is breast-fed and we suspect scanty milk, the weight should be taken before and after the nursing. The difference in the weight will show the number of ounces of milk the infant has taken.

LOSS OF WEIGHT

Sudden Loss of Weight

Every mother and nurse is anxious when her baby loses weight. We can always note a change in the system by a sudden loss of weight. *Every cold in the head (Rhinitis) is preceded by a loss of weight.* Grippe is usually preceded by loss of weight. During fever there is always loss of weight. Loose bowels and vomiting are usually followed by loss of weight. Insufficient food wherein there is a low fat or a low carbohydrate, insufficient quantities of sugar and protein usually result in a loss of weight. There is a series of wasting diseases, such as bronchitis and tuberculosis, which produce a constant loss of weight. There will be no gain and sometimes

a distinct loss of weight during whooping-cough, partly due to the strain of the cough and its associated loss of sleep. Restless and nervous children who do not sleep do not gain in weight.

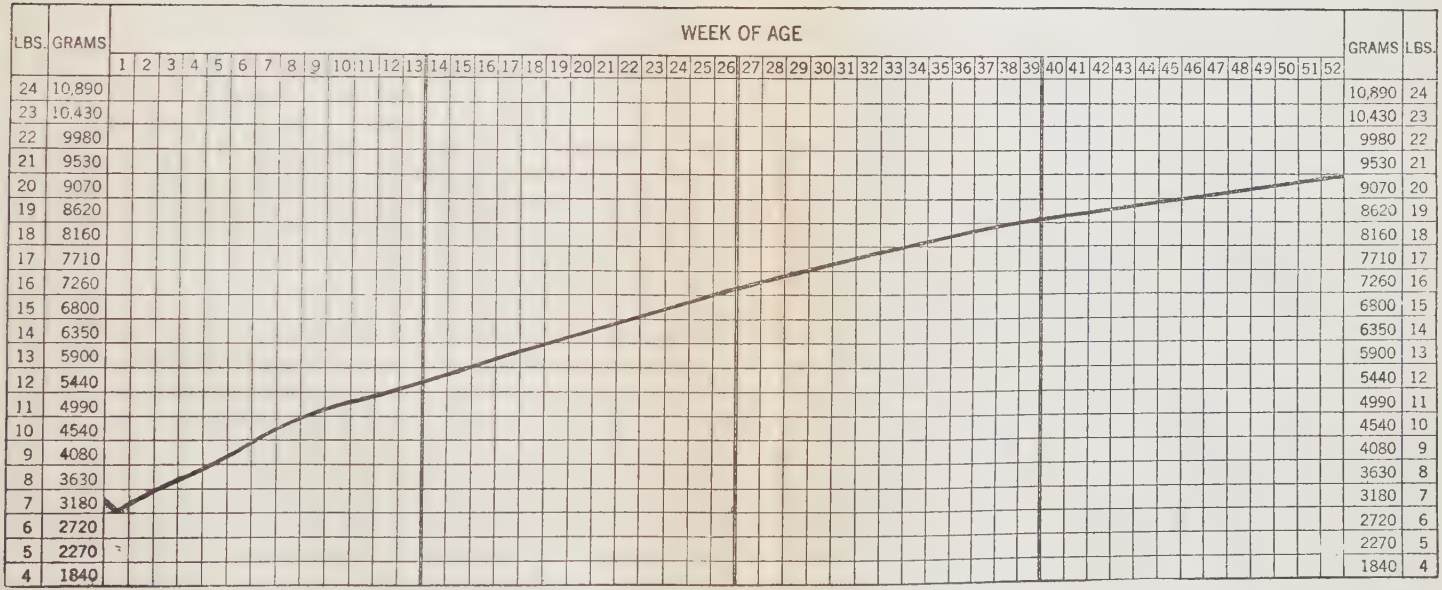
The Hair

The growth of hair seen on the baby's head at birth usually falls out during the first three or four weeks of life, and then a new growth gradually takes its place. This hair is light in color, but usually becomes darker as the baby grows older.

Intelligence

During the second month the baby shows signs of intelligence. This is the time when the mother and nurse think it necessary to entertain the baby, but this gives more pleasure to the mother than to the baby, whose nervous system is very delicate. The brain is very active during the first year of life and therefore requires rest and quiet. During the third and fourth months the baby learns to hold up its head if its back is supported. It will learn to recognize its mother and it begins to smile and "coo." The first tears are usually seen during the third month. During the fourth month the baby begins to notice its toys. The salivary glands become active and drooling begins. During the sixth month the baby tries to sit up unsupported. This should not be encouraged or allowed until the seventh month and then only for a few mo-

BABY'S WEIGHT CHART



HEAVY LINE INDICATES THE WEIGHT OF AN AVERAGE BREAST-FED INFANT

ments at a time. During the seventh or eighth month the first tooth usually appears.

Diseases of the bones, rickets, and scrofula retard growth. A child should begin to walk at the end of twelve months. If a child when beginning to walk uses chiefly its toes and has a limping gait, more especially if symptoms of pain be noticed in one knee, and tenderness be caused by handling the limb, the physician should be consulted. During the ninth and tenth months the baby attempts to lift itself up on its feet, and during the tenth and eleventh months it is able to stand with assistance. The first attempts at walking are generally made during the twelfth month, and at fourteen or fifteen months the baby as a rule is able to walk very well alone. The baby should never be encouraged to walk; it will walk of its own accord when its muscles and bones are strong enough to support it.

Walking

The baby begins to talk about the twelfth month, its first words usually being Mamma and Papa. The center of speech may be inactive and show no signs of development until the end of the second year. If the child is otherwise healthy, no alarm need be felt at this state of affairs. If, however, the child is backward in its physical development, as well as its mental development, then treatment must be sought to remedy this condition.

Talking

If an infant showing proper development begins to speak, and for no apparent reason then stops speaking, the cause of the condition should be carefully investigated. A child suffering from a severe infectious disease, such as diphtheria, may during convalescence, develop paralysis, which might cause the sudden cessation of speech. The neglect of treatment at such a time may result in permanent injury to the child.

The Fontanel

The fontanel or "soft spot" in the baby's head should be completely closed by the end of the eighteenth month.

Kicking for Exercise

For the first two weeks of life the baby takes very little physical exercise, but after this it begins to kick and move its arms around, thus providing plenty of exercise. The clothing should be loose enough to permit the baby to use its arms and legs freely. It gets exercise while in the bath, kicking its legs and moving its arms. A cool sponge bath chills the surface of the body and causes the baby to draw long breaths; this expands the lungs and is the best form of pulmonary gymnastics. When the baby cries from temper let it alone —the lungs are exercised by crying.

When carrying the baby, change from one arm to the other so that it may learn to use and exercise both arms equally.

Creeping

When the baby is six months old place it

on a large, clean rug and permit it to roll and creep at will. This exercise requires no regulation except precautions against dangerous places.

Do not put the baby on its feet. When the baby can pull itself up on its feet by its own effort, it will be time to encourage it to make the effort to stand and walk. Later on, walking will be the best outdoor exercise. **Walking**

If the baby is born in summer and perfectly normal, the first outing should be given after eight or ten days. If born in winter it must be gradually accustomed to outdoor life. This is best done by dressing the baby in cap and coat in addition to the house clothes and placing it in the carriage in the nursery. Open the windows from the top, close all doors so there is no draught, and wheel the baby back and forth for an hour or more. This method of giving fresh air can also be employed when the baby is older and the streets are wet or when very sharp winds are blowing. When the baby is two months old, it may be taken out in dry, cold weather. At first, keep it out for an hour or two in the warmest part of the day. Gradually increase the length of time from week to week until the baby is accustomed to outdoor air, when it can remain for several hours at a time each nice, dry day. In summer the baby may be kept outdoors until **Outdoor Life**

7 o'clock, and in the winter until 5 o'clock if the air is clear and dry.

In summer the baby should be taken into the house or in the shade during the hottest part of the day, from 12 noon to 3 P.M.

The Carriage

Select a carriage that is strongly built, that has good springs, wheels with rubber tires, and a top that can be made to fit tightly about the head of the carriage. This top is especially valuable in winter, as it keeps off all winds. Separate tops of linen can be bought for use during the summer. These tops whenever possible, should be lined in green, as this color is the least trying to the baby's eyes. In winter the carriage should contain a hair pillow covering the bottom of the carriage and another small, flat hair pillow for the baby's head. Over the pillow should be placed a knit wool blanket. The baby should be placed on this blanket and should be carefully wrapped in it. Another wool blanket or afghan should be placed over the baby and tucked well in at the sides and foot of the carriage. Over this a fur robe should be placed in very cold weather. In summer, cotton covers take the place of the wool blankets. When the baby is still very young the nurse should wheel the carriage on one block so as to avoid jars at crossings or curbs. When it is necessary to take the carriage over curbs,

WEIGHT AND FEEDING RECORD

AGE	Weight Pounds Ounces	Gain+ Loss— Ounces	Food	Stool
1 week				
2 weeks				
3 weeks				
4 weeks				
5 weeks				
6 weeks				
7 weeks				
8 weeks				
9 weeks				
10 weeks				
11 weeks				
12 weeks				
13 weeks				

WEIGHT AND FEEDING RECORD

AGE	Weight Pounds Ounces	Gain+ Loss— Ounces	Food	Stool
14 weeku				
15 weeks				
16 weeks				
17 weeks				
18 weeks				
19 weeks				
20 weeks				
21 weeks				
22 weeks				
23 weeks				
24 weeks				
25 weeks				
26 weeks				

WEIGHT AND FEEDING RECORD

AGE	Weight Pounds Ounces	Gain + Loss — Ounces	Food	Stool
27 weeks				
28 weeks				
29 weeks				
30 weeks				
31 weeks				
32 weeks				
33 weeks				
34 weeks				
35 weeks				
36 weeks				
37 weeks				
38 weeks				
39 weeks				

WEIGHT AND FEEDING RECORD

AGE	Weight Pounds Ounces	Gain + Loss — Ounces	Food	Stool
40 weeks				
41 weeks				
42 weeks				
43 weeks				
44 weeks				
45 weeks				
46 weeks				
47 weeks				
48 weeks				
49 weeks				
50 weeks				
51 weeks				
52 weeks				

the hind wheels should be gently let down first. This avoids a sudden forward jar and leaves the baby in a comfortable position.

As the baby grows older and is able to sit up, or about the ninth month, the seats which are bought with the carriage may be used and arranged so as to hold the baby in the proper position.

Feeding in the Carriage

The best place to feed the baby is in the house, altho I frequently permit a baby to be fed in the carriage out of doors during the summer.

Sleeping in the Carriage

The baby may sleep when in the street. It is in no more danger of taking cold while asleep than when awake. We invariably find those children who sleep out of doors less apt to take cold. See that baby is dressed warm and placed in the sunshine with his face and eyes protected from the sun and wind, and it will sleep with comfort and advantage.

CRYING

A certain amount of crying is necessary for the baby if it is to be healthy and strong, for this is the way it exercises the lungs and sends the blood to the extremities.

This normal cry is loud and strong and baby may indulge in it frequently; even tho it get red in the face, this cry is healthful. A careful and observing mother will soon learn to

know this cry from the cry of pain, hunger, or discomfort.

The baby may cry because it is hungry, or thirsty; its napkin may be wet; it may be frightened or sleepy; its clothing may be uncomfortable; it may be tired from lying in one position, or it may be crying from temper and want to be indulged.

Take Temperature

When infants cry continuously and are neither hungry nor in pain from constipation, then some disease must be suspected. The temperature should invariably be taken to see if fever is present. In many instances we will find crying associated with some acute illness. Abdominal pains such as accompany an intestinal obstruction due to the swallowing of a foreign-body, or an acute appendicitis which gives rise to pain, will cause crying. If in doubt, call the doctor.

When the baby cries see that it is comfortable, that the napkin is not wet, that the hands and feet are warm, that the clothes are smooth under it, that no pins are pricking, and change its position.

If crying from colic the cry is strong, sharp, and spasmodic, and often accompanied by a drawing up of the legs and a contraction of the features. This cry is relieved very quickly when an injection (enema) of one pint of soap water is given.

Causes of Crying

The cry from earache is a continuous whine and often the hand is brought toward the head. Such pain is relieved when warm camphorated oil is dropped into the ear, or placed in the ear on cotton.

The cry of hunger is a continuous, fretful sound, heard soon after feeding or some time before the next meal is due, and is usually accompanied by the sucking of the thumb or fingers.

When the baby is very ill or weak the cry will be low or moaning.

Great care must be taken not to misinterpret moaning. This cry will be heard in meningitis. It may be present after an injury, or a fall on he head. It may also follow irritation due to worms. Continuous moaning is never a symptom of teething.

When food is refused, and the moaning or crying continues for several days, inspect the throat for a probable abscess or tonsil disease.

The cry of temper is loud and strong and is accompanied by kicking and stiffening of the body. It can easily be distinguished from other cries, for when baby gets what is wanted the crying immediately stops. This cry of temper should never be given in to or the mother will regret it later on. The training can not begin too early. When the baby cries from fright it should be taken up and com-

forted and as soon as quieted put back on the bed again.

When the baby cries and all causes but temper have been eliminated, then let it "cry it out," even if baby cries an hour. The second struggle will not last so long. The third will be still shorter. If the abdominal band is properly applied no rupture can result from this crying.

Sometimes infants will suddenly awake from a sound sleep and shriek or scream. A heavy feeding at night, with overloaded bowel, will sometimes cause a disturbed sleep. In addition to worms, or an overloaded bowel, an irritation due to an adherent or elongated prepuce will disturb sleep by reason of the itching or excoriation and cause infants to cry in their sleep.

Pain or difficulty in urination will cause infants to cry and be very irritable. Just as the infant's bowel must be supervised, so also must the bladder be watched.

When infant girls have a discharge and a redness around the genitals, there frequently is pain and difficulty in urinating. Such infants will retain the urine as long as possible. A very warm tub bath of two or three minutes' duration will relieve this condition. After each urination the infant should be washed

with a weak alum water, dried, and then have zinc salve applied to the reddened parts.

In cases of habitual crying it is better to get the opinion of a physician as to the cause before subjecting the baby to too rigid discipline.

CHAPTER VI

PROPER TRAINING

Resting

FROM earliest infancy it is advisable to train the baby. After nursing or feeding from the breast or the bottle, it should be laid in its bed. If this habit is begun early a regular habit of resting can be formed.

The Bowels

When baby is three months old it can be taught to use the commode. The baby should be placed on a small chamber held in the nurse's lap. As the baby grows older and strong enough to support its back it may be placed on a chair or commode. The best time to have baby's bowels move is in the evening before its bath or before the evening feeding. As baby grows older its bowels will move with less effort after the feeding, but this should not be encouraged while it is young, for it is apt to regurgitate its food. If the baby makes no attempt to move its bowels when placed on the commode, then a small soap stick, or a gluten or glycerin suppository, should be inserted into the rectum. By this means we direct the baby's attention to the reason for being placed on the vessel. Such treatment

may be repeated daily for weeks or until baby's bowels move unaided.

Each child should have its own vessel or its own seat as a sanitary measure. These sanitary wooden seats can be bought at any of the large department stores. They can be laid on any vessel and prevent the child's body from coming in contact with the vessel. As they are small in size they are adapted for the young infant as well as for the older child. **Sanitary Nursery Seat**

The Queen Manufacturing Co., of Chicago, Illinois, makes a seat that clamps on any ordinary toilet seat. The opening is six by seven inches. It is finished in smooth white enamel. The back for supporting the child is adjustable, so that the seat can be carried in a suit-case when traveling. A strap buckles across the front.

What is possible with the bowels can be accomplished with the bladder. If the mother or nurse will place the infant on a vessel every three or four hours it will gradually learn to hold its urine until such time. The baby should be placed on the vessel immediately on awakening, be it night or day. Children invariably empty the bladder on awakening. **The Bladder (Urine)**

At birth, the baby may normally have from three to four movements in twenty-four hours. As it grows older one or two movements a **Normal Movements**

day will be sufficient. While the baby is fed on a milk diet its stool should be yellowish in color, smeary or paste-like in consistency, and the smell should be acid, but not disagreeable. As soon as an exclusive diet is changed to a mixed diet, the stools lose the yellow color and become darker, and resemble more those of an adult, tho remaining softer and thinner throughout infancy.

Mucus

Mucus is always present in all healthy stools, but is so well mixed that it does not appear as mucus to the naked eye. Any appearance, therefore, of mucus easily visible should be regarded as abnormal.

Abnormal Movements

Abnormal stools requiring treatment are these: Greenish stools resembling spinach; greenish stools containing small, white particles; brownish stools having a very offensive odor; thin, brownish stools resembling muddy water, passed with considerable flatus (gas); dry, white or light gray stools; stools with jelly-like masses or long shreds of mucus; stools passed in hard, dry balls; stools mixed with blood.

The Nervous System

To develop an infant's brain the nervous system requires quiet but cheerful surroundings. Useless excitement is harmful. To take the baby and handle it like a toy is wrong. I have seen infants taken up from a sound sleep to display the "talent" that some one has

taught them. Nothing is more harmful than to have the mother compel her infant to display various tricks during its feeding. While this is a gratification to the friends, it certainly is harmful to the infant's brain and nervous system.

Sleep

A new-born baby sleeps about nine-tenths of the time. The sleeping time gradually diminishes, and when the baby is five months old it usually sleeps all night and requires a long nap of two or three hours in the morning, and another of about one hour in the afternoon. The healthy baby sleeps with his mouth closed, the nostrils can be seen dilating gently and the chest moving slightly and regularly. The baby should never perspire while sleeping, but the skin should remain warm.

The baby should be put to bed while awake. It should first be fed and made comfortable, and the room should be darkened. It should neither be rocked nor sung to sleep; if left to itself, baby will soon learn to fall asleep quietly. It should be put to bed no later than six o'clock. The afternoon nap should be continued until the baby is four years old or older.

Disturbed Sleep

Disturbed sleep or sleeplessness is usually caused by improper feeding, and, in the bottle-fed infant, by over-feeding or too frequent feeding. Intestinal indigestion and colic are

the most frequent causes. Discover the cause and remove the disturbance yourself if possible; failing to do so consult a physician, for the trouble may be due to large tonsils, adenoids, spine or hip disease, chronic joint pains, earache, or toothache. See that the baby's feet are warm. Do not give it too much clothing. Do not excite it with a new toy or romping play, and do not arouse fear before putting it to bed. Do not use soothing sirups or other medicines.

Bad Habits

When the baby is put to sleep its hands must always be outside of the blanket or bed clothing. Bad habits are easily acquired, especially so if the genital parts are unclean. Any itching may cause a desire to scratch, later on, this may lead to constant fumbling, and if this latter is not corrected we may find that our baby is addicted to one of the worst habits found in infants or children—namely, masturbation.

The Pacifier

The pacifier is used by mothers and nurses who do not realize its unsanitary nature. The friction during the sucking act causes the mouth, gums, and tongue to become so irritated that disease germs penetrate, resulting in a mouth-disease called thrush or sprue.

CHAPTER VII

VACCINATION

SMALLPOX is prevented by vaccination. All infants over two months old may be vaccinated. If smallpox exists in a locality or if an infant has been exposed, it should be vaccinated immediately.

When possible, vaccination should be done during the spring or fall, but the time of the year does not in any way influence the result. Nor is there any danger from vaccinating during the winter or summer.

While many physicians vaccinate on the arm, many more choose the lower (outer) third of the leg. It matters little which part of the leg is chosen so long as the virus is absorbed. When an inflammatory reaction takes place, immunity (protection) results.

No mother or nurse should attempt to vaccinate a baby; a physician should always be called. With care and cleanliness there is little or no danger of complication; on the other hand, if the slightest amount of dirt from a finger-nail or any other contamination is introduced into the wound, a child may con-

tract erysipelas, which may lead to blood-poisoning and death. Five to seven days after vaccination, inflammation or redness around the vaccinated area will be noticed. This is the natural course "of taking." If this redness spreads and the skin is swollen and tense the physician will usually prescribe a cool, moist dressing of lead-water or a one per cent. boric-acid solution. The reddened surface is to be covered with gauze moistened with one of these solutions until the inflammation subsides; this usually takes two or three days more, in all about ten days.

CHAPTER VIII

DENTITION (TEETHING)

ABOUT the fourth month the glands in the mouth show activity. This results in a drooling or slobbering but it is not a sign of teething. The first tooth usually appears between the seventh and tenth months. In some infants the first tooth may not appear before the end of the first year. Then again, a tooth may appear as early as four months or five months. Late teething is usually due to a deficiency in calcium but it may also be due to the absence of proper hygiene in which a lack of sunlight exists. The principal fault, however, is improper nutrition. **Drooling**

To favor calcium deposit, one should resort to vegetables containing the earthy salts, principally spinach, string beans, and when an infant will not chew, then spinach powder such as spintrate * should be given. This powdered spinach can be added direct to the milk or may **Calcium Deposit**

* Spintrate can be procured from Mr. Ralph Poole, c/o Spinach Products Co., 233 Broadway, New York City.

be fed in broth. Likewise, there are vegetable purées on the market which have served the writer in many cases. These are sterilized spinach, carrot and peas puréed.* Tomato juice and cabbage juice should also be given.

It is always best to commence feeding the child fruit juices and cereals as early in life as possible. The teeth start developing in the jaws early in pregnancy so it is never too soon to commence giving foods of high calcium and phosphorus content. Their effect is equally beneficial for bones as well as for teeth. Farina, hominy, oatmeal, cornmeal, and arrow root pudding may be given as early as the sixth month.

First Teeth

The infant's first set of teeth are called the temporary teeth. The first tooth of the second or permanent set begins to appear about the sixth year. It is located behind the last temporary molar and is often mistaken for a temporary tooth.

Many mothers and nurses dread the teething period and regard it as the time when the baby is likely to be sick. This is a mistake as there is nothing whatsoever to fear.

There are twenty temporary teeth. The following table shows the usual rule followed by normal dentition in the average baby:

* Clapp's original approved baby products sold by Charles & Co., 43rd Street and Vanderbilt Avenue, New York City.

1 and 2 are the lower incisors, usually first teeth; then follow 3 and 4, the upper incisors.

19 11 13 5 3 4 6 14 9 17

20 12 15 7 1 2 8 16 10 18

Normal Appearance of Teeth

Normal children usually teeth in pairs and not singly, whereas infants suffering with rickets usually have an eruption of single teeth. As a rule there is a lapse of from three to twelve weeks between the appearance of each group. When during the period of teething, an infant puts its fingers in the mouth and there is fever, loss of appetite, etc., do not believe that this is due only to teething. Consult your family physician and if he believes that the gums are at fault, then consult a modern dentist. Do not permit the gums to be lanced, as there is great danger of poisoning and infection. I have seen very serious results follow the apparently innocent method of lancing a gum. If the gums are very hot, an ice bag applied externally along the lower jaw for one hour is very soothing. Fifteen drops of paregoric with one teaspoon of water can be

massaged on both gums. A teaspoon of ice-cream or very cool water is soothing. Be sure, however, to ask your physician regarding the diet and regarding the possibility of a stomach or intestinal derangement.

HYGIENIC MEASURES

Care of the Mouth

During the first few months before the first teeth have erupted, the mouth should be cleaned by giving a drink of water immediately after feeding. The delicate structure of the mouth in an infant should not be brushed or rubbed.

The first visit to the dentist should be made between the ages of three and four. In that comparatively short time, decay may have started in one of the teeth and if allowed to progress unchecked, results in pain and finally in death of the nerve. This may, if untreated, cause an infection in the jaw which may cause trouble if not seen in time. The familiar gum boil is a manifestation of an early infection in the jaw resulting from a dead tooth.

The idea that temporary teeth should not be filled is erroneous and often leads to unpleasant consequences. Some of them are not replaced by permanent ones until the eleventh year and if they are allowed to die, the resultant infection frequently injures the tooth germs of the permanent teeth underneath.

CHAPTER IX

X-RAY*

THE use of the *X*-ray has become so general that it can be applied as an early means of diagnosis in many diseases, while formerly it was only useful to detect foreign bodies when swallowed, and fractured bones. It is useful to detect growths, brain tumors, an abscess in the frontal sinus, mastoid, suppuration, tuberculosis of the lungs, pus in the pleura (so-called "empyema"), a displaced heart, an enlarged heart, the early development of rickets until cured, scurvy, hemorrhages, the teeth and their various disorders. The use of the *X*-ray is not only confined to the diagnosis and detection of the various disorders, but it also has many applications in the treatment of diseases; so, for example, there is a strong tendency to treat tubercular glands and diseased tonsils by use of the *X*-ray. Many other disorders, such as ringworm of the scalp, have been successfully treated by the application of *X*-rays.

*See also page 170

CHAPTER X

TRANSFUSION*

THIS method of injecting blood into an almost moribund infant by means of transfusion is becoming more and more known. In most infants' hospitals the transfusion of several ounces of blood is a routine measure when infants suffer with malnutrition. Such infants have cold extremities and require the stimulating effect of fresh human blood, and will frequently take their food and assimilate it, gain in weight, and appear transformed after several ounces of blood have been added to their own enfeebled blood. The transfusion of several ounces of blood is a life-saver when infants bleed. Hemorrhage following circumcision or an operation for adenoids and tonsils can be checked by the injection of several ounces of human blood. It is safer to match the blood of the donor, be it father or mother or relative, with the infant's blood to be sure that no trouble arises from the transfusion. It is a simple process in the hands of one experienced to do this work. There is no shock and our results have been so good at the Infantorium,† as to justify its recommendation as a general measure when inanition exists.

*See also page 75.

†Located in the Heckscher Foundation.

PART II

FEEDING

CHAPTER I

NATURAL METHOD OF FEEDING

THE natural method of feeding a baby is by means of the human breast. If this were not so, then every woman would simply pass through her period of pregnancy and the breasts would not secrete milk. Breast-milk contains, in addition to nourishment, certain antibodies. These substances usually prevent a child from taking the acute infectious diseases. To produce this immunity from disease is in itself sufficient compensation for the arduous duties demanded of a nursing mother. **Breast-Feeding**

Recent studies with human milk have shown that the greatest number of infants owe their dyspepsia, with its train of symptoms such as colic, flatulence, eructations, and vomiting, to overfeeding.

Overfeeding results from following the old rule of feeding every two hours. Experience has demonstrated that it is wiser to substitute an interval of at least three to four hours, and so give no more than six, rarely seven, feedings in 24 hours.* We also gain thereby an **Overfeeding**

*See Feeding Schedule, page 77.

interval of rest for the mother which seems to relieve her of the overstrain from too frequent nursing.

There are times when the breast-milk is deficient in quantity. At such times we should always make use of what little breast milk is present and supply the deficiency by giving the bottle. This is called supplementary feeding.

WATER

Every child, young or old, must receive water several times a day. Water aids materially in clearing the mouth and gums and in quenching thirst. An infant up to the first month should receive several teaspoonfuls of plain filtered water either immediately after nursing or feeding, or as soon after feeding as possible. It is not necessary to awaken the child in order to give it a drink. If it is not time for feeding and the infant is restless, a few spoonfuls of cool water will frequently quiet it. When we desire to modify constipation, then water will be a most important factor, especially, so when large, cheesy curds are found in the stool.

The average child of eighteen months should take between sixteen and twenty-four ounces of water in twenty-four hours. In warm weather, when the child perspires freely, more will be necessary. Sips of water may be

taken with the meals, but the best time to drink water is after meals, or between meals, not immediately before or at the beginning of a meal when it will interfere with digestion.

During Fever

Water liberally given will reduce fever. Dryness of the mouth and lips and the various tissues of the body require water. It will also aid in stimulating the kidneys which is a very important factor during any fever. Fever will frequently be reduced by the simple process of giving a high enema with cool water.

CHAPTER II

THE PREMATURE OR WEAK INFANT

Premature Infants

PREMATURE or weak infants with persistent cold extremities, loose bowels, and loss of weight, after receiving several modifications of cow's milk, should be given human milk. Human milk can be obtained from any nursing woman regardless of the age of her infant. If we do not know the source of the human milk it should be heated until it has thoroughly steamed at least 10 minutes. This pasteurization of human milk is a safeguard against infections, such as syphilis.

It is important to inquire into the reason for the premature birth of an infant. It is due, in many instances, to weakness in the mother, to shock, or to previous illness. An accident, injury, shock, or fright may cause a premature birth. In rarer cases syphilis in the father or mother, so-called hereditary syphilis, may be the real cause of a premature birth. A physician should always be consulted when a premature baby is born, and no mother should undertake the responsibility of feeding a prematurely born infant because of the many dangers. A series of rules may be given which

apply to all premature infants, especially those weighing less than six pounds at birth.

A daily oil-bath consisting of rubbing the infant with warmed olive-oil will protect the skin and keep the body warm. Such infants should be swaddled in cotton and hot-water bags or electric heat bulbs so placed that the infant receives a continuous artificial warmth. Soap water bathing should not be used until the infant has reached seven pounds in weight. The infant may be cleaned with absorbent cotton saturated with warm oil. This applies to soiling when the bowels move. **Oil-bath**

While the body should be kept warm, fresh air must be permitted. Our success at the Infantorium has been due to giving oxygen and keeping the infants warm. An inhalation of pure oxygen can be given several times an hour, especially if a tendency to blueness of the skin exists. **Fresh air**

The life of these infants depends on human milk. It is very easy to procure milk from mothers in the larger cities. Such milk must be heated to the steaming point, and steamed 10 minutes to pasteurize it. This is a safeguard, just as we safeguard the infant in using cows' milk from an unknown source. When human milk is insufficient in quantity, then we can supply a supplementary feeding of Dryco or Klim. My results have been excellent **Feeding**

when giving 2, 3 or 4 teaspoons of Dryco to 1½ ounces of hot water for one feeding. The addition of ¼ or ½ teaspoonful of Granulated (Cane) Sugar or Dextri-maltose may be necessary if the weight is stationary.

The Incubator

In this country most infants' hospitals have discarded the incubator. Opinions differ as to the value of the incubator. Pirquet, of Vienna, has discarded the incubator at the Children's Hospital and he uses fresh air in a warm room and gives human milk from a wet nurse. Finkelstein of Berlin has also discarded the incubator. Marfan of Paris has discarded the *couveuse* or incubator. Our best results are obtained with:

1. Inhalation of oxygen;
2. Human milk.
3. Oil bath and warmth.

AN INFANT-FEEDER ESPECIALLY ADAPTED TO AID A WEAK INFANT UNABLE TO NURSE WELL

Many premature infants are so weak that they can not feed properly. To assist such a premature infant and not exhaust it by its suction, the infant feeder (see illustration) is advised. The nipple is no larger than an ordinary medicine dropper, and the food can

be forced into the infant's mouth. For weak, premature infants this method is invaluable, and is worthy of a trial. A premature infant may take but 1 ounce or 1½ ounces. There should be an interval of two hours. If, however, the infant regurgitates or vomits, then the feeding interval should be extended to every three hours or every two and a half hours instead of every two hours. Night feedings should be given every four hours.

The Frequency of Feeding

The weight of a premature infant should be taken every day. It is unnecessary to undress the child completely owing to the danger of exposure. If we find that the infant does not gain, then we should increase the quantity or quality of food, notably in sugar, but this should always be done under the supervision of a physician.

Weight

Transfusion is mentioned because of the excellent results achieved by injecting one or more ounces of human blood at intervals of one or two days. This has great nutritive value. Danger of asphyxiation always exists if a nipple such as a pacifier is put into the infant's mouth. Such an infant requires constant care and supervision and must not be permitted to feed itself. A trained babies' nurse is a valuable adjunct if circumstances permit.

Transfusion

CHAPTER III

BREAST-FEEDING—WET-NURSING

THE first three or four days after birth require special feeding methods:

The first substance secreted in the breasts is known as colostrum. This is thinner than milk and very scant. The exhaustion of the mother requires long intervals of rest, therefore she should not be disturbed more than once in six hours during the first three days to nurse her baby. If, however, the supply of milk is ample then we can follow the table on page 77 and feed the baby every three or four hours.

Interval During Day

During the first month the baby should be fed every three hours during the day, never oftener; and during the second month the same interval should be maintained. The baby may be taken from its sleep during the day to be nursed.

Interval During Night

Do not disturb the baby from its sleep at night to be nursed. Let it rest as long as it appears satisfied. This applies to healthy infants only. In sickness special feeding-rules are required. If the baby thrives and gains in

weight, it is better for both mother and baby to have an interval of rest and skip a nursing or two after midnight. If the baby is restless during this interval, change its position and give it one or two teaspoonfuls of water.

From Birth to 3 Months old	3 to 6 Months Old*	6 to 9 Months Old
	6 A.M. 9:30 A.M. 1 P.M. 4:30 P.M. 8 P.M. 12 Midnight or 6 A.M. 10 A.M. 2 P.M. 6 P.M. 10 P.M. If the infant thrives and digests well	6 A.M. Breast-feeding and several teaspoonfuls of cereal 10 A.M. Breast-feeding and two teaspoonfuls of vegetable pulp 2 P.M. Breast-feeding and several teaspoonfuls of cereal 6 P.M. Breast-feeding 10 P.M. Breast-feeding
6 A.M. 9 A.M. 12 Noon 3 P.M. 6 P.M. 9 P.M. 12 Midnight		

*The breast-fed infant requires the same addition of fruit and vegetable juices as are given to the bottle-fed infant. (See page 138.)

How to Hold the Baby While Nursing (See Illustration Frontispiece)

The mother or wet-nurse should always sit upright while nursing the baby, be it at night or during the day. If the baby is nursing from the left breast, it should be held on the left arm while the right hand presses the breast away from the baby's nose, but without pull-

ing the nipple from its mouth. This will give the baby plenty of air so that it must not let go of the nipple to breathe. When there is nasal obstruction, such as catarrh, or when post-nasal obstruction exists, such as adenoids, then an infant will let go of the nipple in order to draw a breath.

Length of Nursing

No infant should nurse longer than twenty minutes; frequently ten or fifteen minutes will suffice. Do not allow the baby to fall asleep while nursing. If this is allowed it will not get all the nourishment it should have. Light taps on the cheek of the baby will waken it, or the withdrawal of the nipple from its mouth will frequently arouse it to continue nursing. If, however, baby will not renew its nursing, and has already nursed ten minutes, then the sleep should not be disturbed.

Do not allow the baby to take its meal too rapidly, for it is likely to have an attack of hiccup or to regurgitate its food. If the baby nurses too rapidly, withdraw the nipple from its mouth for a few seconds. This may be done every three or four minutes.

As a rule the baby should nurse from but one breast at each meal; if, however, there is not enough milk in one breast, then both breasts may be given.

Additional foods containing vitamins and anti-scorbutics are indicated after six months

of breast-feeding. This should be especially indicated after the mother begins to menstruate or show signs of exhaustion and anemia. When nursing mothers gain considerable weight, they do not, as a rule, have a good milk supply. This is because of imperfect metabolism. The milk may be very deficient; in fact, when nursing mothers have a tendency to become stout, one grain of thyroid extract given three times a day after meals will stimulate their milk-supply, besides reducing their weight. If no change is noted after one week, then the thyroid should be increased, but this requires the advice of a physician.

Supplementary Feedings

After the sixth month of nursing, the infant should receive several teaspoonfuls of spinach pulp or carrot pulp each day. Spinach pulp is especially valuable to modify constipation. After the six months, one teaspoonful of Wheatena or farina or Ralston may be steamed with water for 45 minutes and served each day. The cereal should be increased until three teaspoonfuls are given each day. This cereal feeding is necessary for the development of teeth and bone. When constipation persists, one level teaspoonful of sugar of milk may be added to each bottle-feeding or given with a little water at least two or three times a day. Orange-juice should be given at least

once a day. One ounce of pineapple-juice or tomato-juice should be given daily. If the skin of the child is pale and the muscles flabby, then one teaspoonful of meat-juice may be given once a day. This can be gradually increased. Spinach and carrots and meat-juice will be refused by many and taken very readily by other infants. It is necessary to persevere until the infant will take the new food.

Wet-Nursing

Not all American mothers can nurse their infants. A sick mother, a tuberculous mother, or a very nervous mother is frequently prevented from nursing her baby through her systemic weakness. In some instances human milk may be necessary to save the life of a weak infant or one that has been improperly managed. A wet-nurse can be secured and is in many cases a life-saving substitute. A wet-nurse should never be selected without the supervision of a physician. Her blood must always be tested for syphilis before permitting the baby at her breast. Likewise, the wet-nurse should be protected from contracting syphilis; so that the baby to be wet-nursed* should have its blood examined for syphilis. The large majority of American mothers resort to the usual method of artificial feeding by using cows' milk adapted for the

Wassermann Test

*This is a requirement of the New York Board of Health. In this manner we protect both the infant to be nursed and the wet-nurse herself.

age and requirements of the infant's digestion.

A nursing woman should have three meals a day. These meals should be simple but nutritious and mostly liquid. Meat may be taken once or twice a day. Milk, eggs, cereals, vegetables, and soups should form the principal part of the diet. Vegetables should be taken twice a day. The following are best for the nursing woman: Peas, beans, baked potato, beets and beet greens, carrots, fresh stewed corn, and spinach. The spinach may be creamed or combined with egg. All varieties of fish are nutritious—creamed halibut, creamed cod-fish, fresh mackerel, bluefish, or flounder. For thirst, cool, filtered water or alkaline waters, like seltzer or apollinaris should be taken.

Diet of a Nursing Woman

SCANTY MILK

To stimulate the quantity of milk a nitrogenous diet, such as meat milk, and eggs, is indicated. Vegetables and fruits should be taken liberally. If a woman is subnormal, fresh air and exercise will stimulate metabolism and increase the milk-supply. Thyroid extract, ½ to 1 grain doses three times a day, will stimulate the lacteal secretion. Iron, in the form of pyrophosphate, 5 grains three times a day, will stimulate nutrition. Arsenate of soda, in doses of 1-50 grain, may be given

three times a day; or Fowler's Solution, five drops three times a day, will stimulate the milk-supply. Malt extract, one teaspoon three times a day, may be added to milk. Galactagogs as a rule are disappointing. When we are dealing with very feeble or anemic mothers, then it would be safer to consult a physician as to the reason for such anemia. Many women are anemic because uterine hemorrhage or discharges weaken the blood-supply. Sometimes lack of exercise is the main reason for loss of appetite. No woman can properly nurse or have an abundant milk-supply unless she breathes sufficient oxygen, has exercise out-of-doors, and eats sufficiently to increase her blood-supply, and at the same time produce a liberal supply of milk. In a very nervous woman, or in one affected by psychic disturbances, the milk will be moderate in both quantity and quality. A radical change of air from the city to the seashore or change of scene from the country to the city with exercise in the open air will restore the secretion of milk. The milk-supply may be stimulated by applying the infant to the mother's breast very often. A breast-pump may also be used between feedings to help stimulate the milk. If psychic disturbances are continued, the milk-supply will be affected; and if hysteria exists, we must resort to artificial feeding.

Scanty Milk

If the infant does not gain in weight and we suspect a scanty milk-supply, then it is best to weigh the baby before and after nursing. This will give us the exact amount of milk the baby has taken. This should be continued at least twice a day for several weeks or until a satisfactory gain in weight is obtained.

Foods to be avoided by a nursing woman, are: Onions, garlic, cabbage, ethereal oils, and sour fruits.

Menstruation

The return of menstruation is no contra-indication to the continuation of nursing. In nearly all cases the quality of milk will be affected to such a degree as to cause slight disturbances of digestion, such as restlessness or colic, or some bowel derangement. If the baby continues to gain in weight, nursing may be continued. If there is too much disturbance, diluted cows' milk should be given during the first two or three days of menstruation.

SUBSTITUTE FEEDING WHEN MOTHER IS OUT OR ASLEEP

When a nursing mother has lost considerable sleep and is physically exhausted we can not expect a good milk-supply. Under such circumstances the physician should be consulted to give the baby a substitute feeding, so that the mother can have a few nights of sleep. The following formulas as a substitute

feeding may be followed for an infant one month old:

Dryco.....2 to 4 level teaspoons
Hot Water.....3 ounces
Granulated Sugar.....⅓ teaspoonful

The above is one feeding. Repeat every three hours.

Klim.....2 to 4 level teaspoons
Hot Water.....2½ ounces
Granulated Sugar.....⅓ teaspoonful

Dissolve the Klim in hot water; add sugar. The formula is for one feeding, and is well adapted for a substitute feeding when the mother is tired and exhausted, or it may be given as a supplementary feeding when the breast-milk is scanty.

If the infant is satisfied, then continue the same feeding; but the infant must be weighed and show a gain of at least one ounce a day. If this is not the case, then the quantity of either the Dryco or the Klim should be doubled.

Sweetened Condensed Milk.....1 teaspoonful
Hot Water.....4 ounces

Divide into two feedings, or, if the infant is well nourished, he may have the full amount at one feeding.

Dissolve the sweetened condensed milk in

the hot water. Heat to feeding temperature, but do not steam nor boil it. Feed every four hours during the night to relieve the mother of the nursing strain. If unsweetened condensed milk is used add sugar. If sweetened condensed milk is used, omit the sugar.

If the infant appears hungry and puts its fingers in its mouth after feeding, strengthen the food by adding another tablespoonful of Dryco to the same quantity of water. If the weight remains stationary, then the carbohydrate should be increased. We can give two teaspoonfuls of Dextri-maltose No. 1 to each feeding. This should give an increase in weight. Some infants will do better on the following formula:

Whole Milk.....3 ounces
Hot Water.....1 ounce
Granulated Sugar.....½ level teaspoon

The sugar may be increased to one level teaspoon. Heat all until the steam rises, then cool to feeding temperature.

VITAMINS

When milk is boiled or superheated, as in prolonged sterilization, enzyms and vitamins are destroyed. These are essential for the development of the baby. Experience has proven that when the vitamin factor is absent

scurvy will result. To avoid scurvy, spinach-juice and tomato-juice should be given in addition to the regular feeding. Orange-juice contains the vitamines and is also an antiscorbutic. While these vegetables and fruit-juices aid the nutrition of the body they should also be given for their vitamin content.

Unpolished rice (dark rice) is more nutritious than polished rice, for in the process of polishing much of the vitamin factor is removed.

CHAPTER IV

WEANING

BY weaning a breast-fed baby we mean omitting the breast-milk entirely and substituting cows' milk and other forms of nourishment.

By weaning a bottle-fed baby we mean omitting the bottle and feeding from a cup, or spoon-feeding. In addition, a raw egg or coddled egg, broth, vegetables, fruits, and cereals should be given.

A normal baby is usually weaned between the eighth and ninth months. In some instances it is advisable to begin earlier, for example, when there is a deficiency in the quantity of breast-milk owing to the ill health of the mother. There is no reason to continue nursing one year or longer, for a secondary anemia will result from prolonged lactation. The earthy salts contained in vegetables and cereals are necessary for bone- and teeth-building. If not given at this period rickets usually results.

My rule has been not to wean during the summer months.

Pregnancy does not interfere with lactation, especially during the first few months of pregnancy. Weaning may be gradual, but it may also be discontinued suddenly.

6:00 A.M.....Breast.
8:30 A.M.....Strain the juice of an orange, or 1 ounce of pineapple-juice, or 1 ounce of tomato-juice.
10:00 A.M.....Arrowroot pap* and cup of milk.

1:30 P.M.....Breast.
5:30 P.M.....Feed by spoon one piece crushed zwieback moistened with four ounces of whole milk. Give one cup of whole milk if desired.

10 to 11:00 P.M.....Breast or six ounces whole milk from a bottle.

If the above formula constipates, substitute oatmeal gruel or wheatena for the arrowroot pap.

Six teaspoons of spinach-juice are to be given at 5:00 P.M. If this agrees, after several weeks try strained spinach-pulp instead of the spinach-juice.

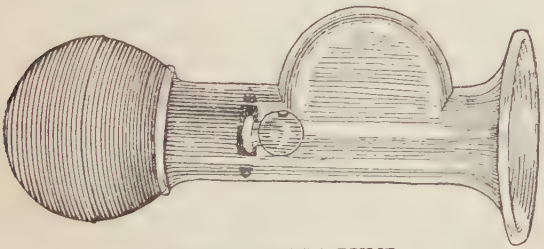
At the age of one year, a slice of toasted wholewheat bread, dipped into chicken broth or steak juice, may be given at noon.

One-half of a baked mealy potato may be given once or twice a week, instead of the arrowroot at 10:00 A.M.

*See dietary.

Caution must be taken in making this change of diet, as the slightest error in overfeeding or too frequent feeding will be followed by a severe attack of dyspepsia and the usual gastric disturbances, such as diarrhea and colic.

If baby has been taught from birth to drink water from a bottle there should be no trouble while weaning him in having him drink his milk from the bottle. If it is impossible to make him drink from a bottle, feed him from a spoon or let him drink from a cup. Some babies learn to drink from a cup when six or seven months old. It is better to have a strange nurse feed baby while weaning him and keep the mother or wet-nurse away so he can not see the breast and be reminded of the breast-feeding.



ASEPTO BREAST PUMP

The bulb fits into the glass part and can easily be removed and assembled. A glass protector prevents milk from running into the bulb.

CHAPTER V

MIXED FEEDING

Supplementary Feeding

WHEN the breast-milk is of good quality, but the quantity is insufficient, and the baby does not thrive and seems to cry from hunger, it is necessary to give him some additional food. This is usually done by giving baby alternate feedings of Dryco or Klim.

Breast Milk and Cows' Milk

The mother or wet-nurse should try to improve both the quality and the quantity of her breast-milk by building up her general condition. Frequently a subnormal or anemic condition requires an iron tonic. In other cases a day's outing to the country or seashore, with moderate exercise will stimulate the flow of milk. When milk is scanty we can sometimes stimulate the flow with a breast-pump. This is especially necessary if the infant is very weak and does not nurse well. My method is to pump the breast and when the milk flows, then put the baby to the breast. One of the best breast-pumps is the "Asepto"* which can be sterilized very easily. When the breast-

*The "Asepto" breast-pump, see illustration on page 89. This breast-pump is also advantageous when a specimen of breast-milk is desired for examination as to its fat and protein content.

milk is scanty and the infant is feeble, a good plan to increase the flow of milk is to apply a strong, healthy baby to the mother's breast and allow it to nurse several times a day. This stimulation usually increases the quantity of milk.

We frequently give cows' milk immediately after the breast-milk. My plan is to give a mixture of

Whole Milk	2 ounces
Water	1 ounce
Granulated Sugar	⅓ teaspoonful

for one feeding. This should be warmed. Let the infant decide how much it wishes to take. If the infant is hungry, it will take every drop. If this agrees, then we can give the above feeding after every breast-feeding until we find that the mother has sufficient for her baby. How can we determine the quantity of milk in a woman's breast? This is a simple procedure. We weigh the baby before feeding and weigh the baby immediately after finishing the breast. If the infant weighs seven pounds when applied to the mother's breast, nurses fifteen minutes, and then weighs seven pounds, four ounces, it has received four ounces from the mother's breast.

CHAPTER VI

ARTIFICIAL FEEDING

COWS' MILK

Certified Milk

IN the larger cities the best cows' milk for infant feeding is sold, in quart bottles, under the name of certified milk. This certified milk is as near perfection as is possible to-day. Grade A milk also is sold in quart bottles, in the larger cities. When Grade A milk is used, or when milk is procured from a farm or in the country, and is not certified or supervised by a Health Commission, then it is best to boil the milk when preparing the formula. Uncertified milk should never be fed in its raw state because of the danger of disease germs, especially bovine tuberculosis. Boiling the milk removes such danger.

In summer, milk should never be used for infant feeding after it is twenty-four hours old. Even within this length of time, on very hot days, milk will frequently sour. When milk is procured direct from the dairy or farm it should immediately be cooled and kept in cold water, at least one hour before the formula is made up.

Milk varies in its percentage of cream. The

average cow's milk contains between 3½ and 4 per cent. of cream. If milk is procured in the country, or on the farm, we must try to procure a mixed milk, that is, milk taken from several cows, rather than milk from one cow. Milk from one cow varies much more in cream than that taken from a herd. The Jersey and Alderney cows have the richest milk; therefore their milk contains much more fat than that from the ordinary cow.

Do Not Use Milk from One Cow

Milk for the baby's feeding should be kept near the ice in a separate compartment of the refrigerator, or better still a nursery refrigerator, in which nothing but baby's food is kept, should be used.

When preparing the formula, milk must be well shaken to mix the cream with the milk. Whole milk feedings are adapted for the average normal infant up to about six months old. If the infant is strong, has good digestion, and can assimilate whole milk, then a teaspoonful or two teaspoonfuls of farina prepared quite thick* may be fed before each milk-feeding. Most infants do badly with cream and top-milk mixtures. In my experience they produce fat indigestion and symptoms of colic with eructation, and the stool contains small fat curds. While some infants appear to thrive and gain in weight, they in-

Whole Milk

* See page 158.

variably show a stomach breakdown from the fat indigestion, and it takes weeks and sometimes months to restore them to their normal condition. Cream and similar high-fat modifications of food will be well borne for a short time, but dyspepsia and pyloric irritation will surely follow if continued for several months.

HOW TO OBTAIN FAT-FREE OR SKIMMED MILK

Let a quart of milk stand four or five hours (or until the cream line is well defined), and then pour off the top half (16 oz.) and reject this. The remaining 16 ounces contains about 1 per cent. fat.

MILK FOR HOME MODIFICATION

Fresh raw milk is best adapted for home modification, but—it must be fresh. It is important, therefore, to inquire how long it takes to deliver the milk from the dairy to the house. In the larger cities it is very easy to obtain milk which is twenty-four hours old. Certified milk is usually twenty-four hours old when delivered for use.

Pasteurized Milk

Pasteurization of milk is a makeshift. The milk is pasteurized because it contains too many germs, and these germs are destroyed by the pasteurizing process. The chemical nature of the milk is changed by this prolonged steam-

ing, hence, pasteurization of milk does not aid the digestibility of the food. If pasteurized milk is fed for a short time it may do no harm. If, however, pasteurized milk-feeding is continued for months symptoms of rickets are manifested. When pasteurized milk is fed for many months and we do not supply the vitamin or live factor, which is destroyed by the prolonged heating, scurvy will now and then develop. To avoid this when using pasteurized milk, one must give from three to six teaspoonfuls of orange-juice, or tomato-juice, even tho the infant is only one month old. Older infants require in addition to orange-juice, the juice of fresh boiled vegetables, such as spinach, from three to six teaspoonfuls daily.

SUGAR

No hard and fast rule can be given as to the total amount of sugar required. Some infants assimilate one ounce of Dextri-Maltose or cane sugar, whereas another infant of the same age or the same weight will require twice the amount of sugar before a satisfactory gain occurs. There are three kinds of sugar used in infant feeding:

1. Cane-sugar, called granulated sugar, or sucrose.
2. Malt-sugar, called maltose.
3. Milk-sugar, called lactose.

Milk-sugar, causes intense irritation of the epithelium. In most of the children's hospitals in Europe, and in many hospitals in this country, milk-sugar is being replaced by maltose in some form, such as Dextri-Maltose. Infants gain in weight when malt-sugar or the malt preparations are given.

Mead's Dextri-Maltose is prepared in three forms which are distinguished by the numbers 1, 2, and 3.

No. 1 Dextri-Maltose (Mead's)
(With Sodium Chloride 2%)

Especially adapted for the general diet of infants. *Mixtures containing No. 1 Dextri-Maltose require no salt.*

No. 2 Dextri-Maltose (Mead's)
(Unsalted)

Adapted for infants or invalids—for invalids especially in cases where high caloric feedings are employed, or where Dextri-Maltose is used in beverages. The latter are rendered unpleasantly salty to the taste by the use of Form No. 1. No. 2 Dextri-Maltose may be employed in infant-feeding in the quantities as prescribed in No. 1.

No. 3 Dextri-Maltose (Mead's)
(With Potassium Carbonate 2%)

For use in special cases of infant feeding. The same quantity of No. 3 is added to the diet as other forms of Dextri-Maltose; in liquid form Borchardt's malt-soup extract, or Loefflund's malt-soup may be added in teaspoonful doses. Many infants vomit when malt-soup or malt-extract is added to milk. Such infants always do better by using Dextri-Maltose No. 3. If, however, there is a sugar intolerance, then it may be necessary to omit all forms of sugar for several days, even the Dextri-Maltose preparation.

Sugar is not only used for sweetening food, but is a very essential element in the growth of the body. The young infant, therefore, requires a large quantity of sugar. Sugar exists in the human milk in a larger quantity than all other solids combined.

The healthy infant can digest maltose or malt-sugar, one or more teaspoons to each feeding, or from two to three ounces in the daily quantity of food prepared. The quantity of sugar ordered is 5 per cent. When there is no gain in weight it can be increased to 10.15 or 20 per cent. Marasmic, and infants with feeble circulation tolerate very high quantities of sugar. The least irritating and most easily assimilated of the sugars is maltose. Dextri-Maltose manufactured by Mead Johnson Company, and Vimaldex, by Merrell-Soule Company.

CHAPTER VII

SUGAR INTOLERANCE

Sugar Intolerance

IF an infant is backward and we desire to increase its weight and regulate its bowels, the addition of Dextri-Maltose No. 1 or the addition of two to three teaspoons of a very thick farina cereal* given before the bottle, is advised.

Many infants do not tolerate sugar. They have loose bowels and fever when sugar is fed. Other children have eczema which will persist until the sugar is withdrawn.

It often happens that infants will not assimilate malt-sugar: they become chafed, the thighs are raw, and the urine has a strong odor resembling ammonia. Such symptoms will disappear when the sugar is stopped and will reappear when sugar is again added to the food.

Loss of weight or stationary weight must be expected when sugar is withdrawn from the diet.

The following suggestions will be helpful when there is intense chafing, an ammoniacal odor of the urine, and when a scaly (eczematous) eruption appears on the face and body.

*See page 158.

Boil 1 quart of buttermilk, strain out the cheese and use the liquid. Give four ounces of this liquid (called buttermilk whey) every three hours for two days, then return to the former method of feeding; leaving out the sugar.

If buttermilk whey is refused because of its sour taste, it can be sweetened by the addition of 1 grain of saccharin to each pint of liquid.

Many of these infants will also do well on dried yellow-pea, or dried green-pea soup.

Dried peas	1 teaspoonful
Butter	½ ounce
Boiling water	12 ounces

Roast the peas in the butter for 10 minutes, add the boiling water and boil until peas are soft. Strain out the shells.

When a scaly eruption of the skin, called eczema, exists, then the feeding of buttermilk or milk soured with the Bulgarian Bacillus or the Acidophilus Bacillus* will be helpful. See chapter on Eczema.

*Acidophilus milk can be bought in any large drug store, and is fed in the same quantity as ordinary milk-feedings.

CHAPTER VIII

HYGIENIC SUGGESTIONS IN BOTTLE-FEEDING

Utensils Required

THE following utensils are required for the modification of milk at home: A two-quart pitcher; funnel (glass or porcelain); one large spoon; one dozen 4-ounce bottles (later 8-ounce bottles); one dozen anti-colic nipples; one box non-absorbent cotton; one large saucepan (for heating milk); one high saucepan (for warming bottles before feeding); one dairy, or pasteurizing thermometer.

Feeding Bottles

The long, round feeding-bottle is the best

A PRACTICAL BOTTLE-HOLDER ESPECIALLY VALUABLE IN HOSPITALS AND INSTITUTIONS

of all feeding-bottles. It is smooth on the inside, has no corners or angles, and can be easily cleaned. The graduated ounces are marked on the outside.

Care of the Bottles and Nipples

As soon as the bottle is emptied it should be cleaned with a bottle brush in clear hot water, then filled with fresh water and set aside. In the morning, before the day's food is prepared, all the bottles should be boiled in a solution of baking soda and water, two teaspoonfuls of soda to one quart of water. The bottles should then be rinsed thoroughly in clear boiled water.

The nipples shown on page 103 are among the best-known nipples in use.

The nipples should be boiled in water for one minute. When not in use they should be wrapped in dry sterile cheese-cloth and placed in a covered jar.

How to Heat Milk

If the source of the milk is unknown and we are not familiar with dairy methods, it is a wise plan to heat the milk in a double boiler until the steam rises, and continue heating at the same temperature for fifteen minutes. We can also subject the milk to the steaming process by using a pasteurizer and steaming the milk about fifteen minutes. Milk should always be sterilized or boiled when on a journey.

Milk can also be pasteurized by heating it

to 140° F. and keeping it at this temperature 30 minutes. At this temperature the tubercle bacillus is destroyed. To avoid contamination the milk, after being heated and modified, should be divided into the feeding bottles, and these bottles stoppered with corks that have been boiled. The bottles should then be placed in the ice-chest, but not on the ice, until feeding time.

Milk heated to 140° F. does not have a tendency to constipate.

BOILED MILK

There are times when the source of the milk is unknown, as when traveling or when away from home. Milk standing too long or exposed to the air will become contaminated.

Germs

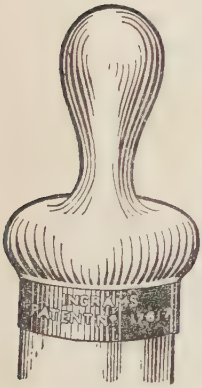
Germs, if present, especially in hot weather, will multiply very rapidly. Milk containing thousands of micro-organisms will multiply so rapidly in a few days that millions will be found. Under such conditions, heating the milk until it boils will destroy all living germs and render the milk safe for feeding.

But in boiling milk, the cream or curd is so altered that it induces constipation. To offset the constipation, Dextri-Maltose No. 3 in one or two teaspoonful doses should be added to each feeding. If constipation persists, then milk of magnesia in one teaspoonful

Transparent Seamless Nipple

Anticolic Nipple

Anticolic Nipple



Transparent Seamless Nipple

Anticolic Nipple

doses may be necessary morning and evening to overcome this condition.

Boiled milk should not be fed for any length of time. If for any reason we use boiled milk in infant feeding, then we must feed such juices as orange or pineapple, or vegetable-juice, such as spinach, to overcome the development of scurvy. These additions to the diet may be begun as early as the second or third month.

CONSTIPATION DUE TO BOILED MILK

Boiling the milk or subjecting it to prolonged steaming, as in the process of pasteurization, induces constipation. Lime water has a constipating tendency. To relieve constipation milk-sugar in doses of one-half to one level teaspoonful may be added to each feeding. Milk should be warmed, not steamed or boiled, if the infant is constipated. A teaspoonful of Mellin's food dissolved in raw warmed milk frequently relieves constipation. Mellin's food contains maltose and this has a laxative tendency.

In many cases constipation can be relieved by giving the baby a bottle containing four ounces of warm water in which two level teaspoons of Horlick's malted milk has been dissolved. We must not be discouraged if no immediate effect is noticed. In persistent con-

stipation we can feed the malted milk, as previously stated, morning and evening. This usually relieves the constipation. Horlick's malted milk from 2 to 3 teaspoonfuls dissolved in 6 ounces of hot water, and given every evening, has a laxative tendency. If this is not sufficient, 1 to 2 teaspoonfuls of malted milk may be added to each bottle-feeding to aid the bowel movements.

CHAPTER IX

RULES FOR FEEDING

EACH baby is a law unto itself, and its individual wants must be studied. One baby will gain on the mixture on which another will lose weight. The proof of the proper assimilation of food in any and every infant will be the following: An infant must appear satisfied after taking its bottle. There should be no vomiting or severe colicky pains. The bowels must move (unaided) at least once or twice in every twenty-four hours. The stools should be yellowish-white, and medium soft. The infant should sleep from four to eight hours during the night without awakening.

Weight Increase

The weight must be taken regularly twice a week or once every three days. If an infant thrives it should gain from four to eight ounces every week until the sixth month, after that it should gain from two to four ounces each week. If the weight shows no increase, by all means consult your physician that he may give more substantial food.

HOME PREPARATION OF INFANT FOOD

A child in good health, with excellent digestion and normal stools, may be fed on whole milk or with a small amount of water added to it.

Stomach Capacity

No set rule can be given for all infants. Each infant's requirements must be studied. The size of the stomach varies in infants. The stomach capacity of one infant may be six ounces at the age of two months, while another equally healthy infant will have a capacity of and be satisfied with four ounces at one feeding. These individual peculiarities must be taken into consideration when estimating the quantity of food for each meal.

The same intervals can not be used in the feeding of every infant. What applies to the quantity applies also to the frequency of feeding. One infant will thrive on a meal every three hours, another infant requires a feeding every two hours. Here again it is necessary to study the individual requirement, and be guided by the amount of rest, by the stool, and by the gain in weight. The tendency of the mother is to overfeed, which is harmful. An infant weighing ten pounds requires about 20 ounces of milk in twenty-four hours. An infant of fourteen pounds requires 25 ounces of milk a day. In addition thereto, to give

the required energy quotient, we must feed at least 50 calories to each pound of weight. We can make up the deficiency of the calories in milk by adding one ounce of granulated sugar or one ounce of Dextri-Maltose to the daily quantity of milk. Special appetites require special amounts.

The Incubator*

The incubator, electrically heated, is used to supply an additional amount of heat to the new-born baby. It has its drawbacks because it is dark and does not permit the sunshine which is so necessary to the growth and development of a premature infant. Altho a good current of air may be established, experience demonstrates that the premature infant needs plenty of oxygen.

Experience has proven that we can do as well, and better, without the incubator than with the incubator. The premature infant requires a great deal of constant warmth, and this can be supplied by electrically heated covers. This has already been described on page 74.

* Read also article on the incubator on page 74.

CHAPTER X

INTESTINAL INDIGESTION AND DYSPEPSIA

IF the stool contains curds or greenish mucus and the infant is restless at night and very flatulent, with occasional eructations, or vomiting, then all feedings should be stopped. In this way we give the stomach an absolute rest. Three ounces of weak tea may be fed every three hours to supply liquid to the infant.

If intestinal indigestion exists and the stools contain mucus and fermented masses, protein milk or lactic-acid milk may, in a general way, be advised when such food is indicated. Infants so affected lose weight rapidly and may die if the trouble is neglected. Supervision by the mother or a nurse is not sufficient; such infants should be placed under the care of a physician.

Catarrhal and stagnant stools give rise to fever, gas, fermentation, and colic. As a rule such infants, owing to the discomfort and pain, do not sleep.

To thrive properly and gain in weight, two teaspoons of castor-oil should be given. The

discomfort caused by the stagnant stool can be relieved by giving an injection of one pint of lukewarm soap-water. This castor-oil and soap-water injection should be repeated daily until digestion improves.

These cases lose weight rapidly, and such loss of weight can be restored by giving water frequently. If vomiting occurs, the same can be corrected by feeding a thick farina paste. Three or four tablespoons may be given before each protein milk meal.

Foul-smelling stools are usually caused by stagnant fermented food in the intestinal canal. This putrefactive condition should be modified by a corrected diet. If, however, the use of anti-fermentative drugs and a modified diet does not correct this condition, then the use of acidophilus milk,* or the use of milk which has been fermented by the Bulgarian bacillus should be tried. It is one of the most successful methods of feeding during infancy and childhood, and can be continued for months at a time.

*Acidophilus milk can be bought in any large drug store, and is fed in the same quantity as ordinary milk-feedings.

CHAPTER XI

PROTEIN MILK

ITS USE IN INTESTINAL CATARRH

WHEN there is mucous in the stools caused by an intestinal catarrh, protein milk * is indicated. During the feeding of protein milk (which contains buttermilk), one should add 5% to 10% of sugar. Protein * milk should be fed in the same quantity as the previous milk feedings. It is very well adapted for infants who vomit frequently. Many infants cannot digest fat. They are sickened by feeding cream. In such cases the cream should be removed from the top of a bottle and if this skimmed milk or fat-free milk does not improve the condition, then protein milk or buttermilk feedings will be indicated.

Cream cheese softened with skimmed milk or with a little broth is liked by many infants. Some prefer sweetening, others a pinch of salt. While cheese has a tendency to constipation, it exerts a healing influence on the intestinal catarrh. So also does junket.

* Lactic-acid protein milk is manufactured by Mead, Johnson & Co.

CHAPTER XII

FEEDING DURING DIARRHEAL PERIOD

LOOSE BOWELS

Lactic Acid Milk

TAKE 1 quart of fresh cow's milk and let it set. Then remove the top 6 oz. of cream and boil the remainder for 5 minutes. Allow it to cool to 105°. Add lactic acid drop by drop (with a medicine dropper) stirring it constantly with a glass rod until 2 teaspoonsful have been added, then add 1 oz. of dextri-maltose No. 1 and mix thoroughly.

For an infant 3 months old, feed 3 ounces of the above every 3 or 4 hours. For an infant of 4 months old, feed 4 ounces every 4 hours. For an infant of 6 months old, feed 5-6 ounces every 4 hours.

The formula is to be continued for 3 days or until the loose bowels cease. It is advisable not to give water nor tea nor orange juice while correcting loose bowels.

If mucus continues to be present and the stools are thin, milk in every form must be stopped.

Whey will not be tolerated. This form of diarrhea usually occurs in summer when milk has undergone fermentative changes due to the presence of bacteria.

To correct loose, foul-smelling stools containing mucus, give a teaspoonful of castor oil: follow this up by giving three ounces of tea sweetened, and repeat every three hours for one day, then give three ounces of protein milk and repeat every three hours without sugar. If the infant refuses to take the food, sweeten with one teaspoonful of Dextri-Maltose No. 1 or one teaspoonful of granulated sugar.

LAROSEN MILK OR CASEC

In diarrhea, with the fermentation so frequently occurring during the summer and fall, the use of casein calcium* has great advantages.

The following is the method of preparation. Mix the casein calcium with four ounces of cold milk and set it aside; then boil twelve ounces of milk. Add the casein calcium previously mixed with the four ounces of milk and boil all five to ten minutes, stirring continuously. Strain and add 16 ounces of boiled water. No sugar is added.

*There are two excellent preparations of casein calcium on the market, one is Larosen and the other Casec (Mead).

If the baby passes three or four liquid stools in 24 hours, it should be given several teaspoonfuls of castor oil to thoroughly cleanse the bowels. This should be followed by a washing of the bowels (enema) or, better still, by a high enema (using one quart of warm water and two teaspoonfuls of bicarbonate of soda.

If loose bowels continue after using the Larosen or Casec modification of milk, then no milk should be given for several days. Four to six ounces of lamb- or mutton-broth thickened with barley or rice may be given every three or four hours.

If the baby is six months or older, then the following feeding may be used to vary the diet:

Arrowroot	2 teaspoonfuls
Water	6 ounces
Essence of vanilla	1 drop
Granulated sugar	½ teaspoonful

Boil ten minutes. Feed every two or three hours.

Instead of arrowroot, cornstarch may be used. No milk is added. These feedings may be alternated with rice water. When the bowels improve, then we gradually replace the water by using several ounces of cow's milk with several ounces of water.

Add one tablespoonful of unpolished rice to

one quart of cold water, boil two hours, adding water from time to time. Strain, and add enough boiled water to make one quart. When rice-flour is used add two teaspoonfuls to a quart of water.

Boiled water to which one teaspoonful of lime-water is added may be given to quench thirst and between feedings.

Very weak tea to which the white of a raw egg is added is nutritious and also quenches thirst. The tea has an astringent effect and may be given regardless of the age of the infant.

Starvation

When colitis or catarrh of the bowels exists, with frequent stools, we should rest the stomach by giving weak tea, using ordinary tea made one-half as strong as for an adult. To one teacup add one teaspoonful of sweetened condensed milk. This may be fed from a bottle, and repeated every four hours for one day.

Transfusion

When loss of weight due to intestinal indigestion continues, cold extremities and frequently flabby muscles will be noted. The transfusion of several ounces of blood is a life-saver in many of these cases. It is such a simple operation and practically without danger that its use should be even more universal than it is at present. In a moribund condition we have frequently seen excellent results following such a transfusion.

CHAPTER XIII

SUBSTITUTE FOODS

FAT-FREE MILK, ALSO KNOWN AS SKIMMED MILK

DURING fever or when vomiting occurs, fat-free milk should be used. During fever the stomach can not digest whole milk. When the stomach is weakened or inflamed, its digestive power is lessened; hence fat-free or skimmed milk should be given. Skimmed milk is made by removing all the cream which rises to the top of the milk after it has stood on the ice three to four hours. The remainder is known as skimmed milk. One should obtain fresh milk daily, however. When this is impossible, as when traveling, it can be bought prepared, in tins.*

Fat intolerance

Small, round, lentil-shaped curds, sometimes present in the stool of an infant, are known as fat curds. As a rule they are caused by "fat indigestion," because the formula contains too much cream or fat. Other curds, very large

*Borden's Condensed Milk Co., New York.

and coarse, are usually saponified fat, or casein or cheese curds. If improvement is not noted and curds continue to appear in the stool, then a complete change of food must be made.

We occasionally meet with infants who can not digest cow's milk. These cases have a "milk idiosyncrasy." The substitution of dry milk, such as Dryco which is an easily digested food, is advised. This food is especially adapted for the very young infant. Dissolve two level tablespoonfuls of Dryco in three ounces of hot water, and feed every three hours, gradually increasing the quantity of food until the infant is satisfied. In special cases the addition of one or more teaspoonfuls of malt sugar is advised.

CONDENSED MILK

Condensed milk sweetened with cane-sugar is sold in tins, under the name of Borden's Eagle Brand. It may be used as a substitute food for a short period when there is vomiting or fever. For an infant of three months, dissolve two level tablespoonfuls of condensed milk in twelve ounces of hot water and divide into three feedings of four ounces each. Feed every three hours. This may be increased by adding one teaspoon of condensed milk and one-half ounce of water every seven to ten days for one month. From four to six tea-

spoonfuls of orange-juice or vegetable-juice should be given once daily.

EVAPORATED MILK

Evaporated milk is sold fresh daily, in bulk. The Peerless Brand, sold in tins, is an excellent substitute food.

When evaporated milk is used, malt-sugar or cane-sugar as well as water must be added. This evaporated milk is adapted for infants with weak digestion. It is especially useful during periods of fever. It is useful in summer for delicate infants as it is more easily digested than the regular milk. When infants vomit on their usual milk formula, they will retain evaporated milk diluted with water. For an infant of three months, two level tablespoonfuls of evaporated milk should be mixed with twelve ounces of water and one tablespoon of malt-sugar or granulated sugar. This is to be steamed five minutes and divided into three feedings of four ounces each. Feed every three hours. If there is a tendency to looseness of the bowels then barley- or rice-water may be used instead of the plain water. If this formula agrees we may add one level teaspoonful of the evaporated milk and another half-ounce of water to the above formula every seven to ten days for one month. When using evaporated milk feedings, orange-juice and

fresh vegetable-juices must be given. These should be ordered by the physician.

DRIED MILK

Dried milk is obtained in powder form. It is made from fresh whole milk by rapid evaporation of the water. It is convenient because it is a powder to be dissolved in warm water, and is then ready for feeding.

Dryco,* one form of powdered milk, is an excellent supplementary food used in conjunction with human milk. Our results at the Infantorium have been very good with it.

In preparing one ounce of Dryco, take one tablespoon to one ounce of water, then add one-third to one-half teaspoonful of granulated sugar. To make a two-ounce feeding add two tablespoonfuls of Dryco and one-half teaspoon of granulated sugar. For a three-ounce feeding take three tablespoonfuls of Dryco and add one-half teaspoon of granulated sugar. The feeding interval depends on whether we are giving Dryco feedings entirely, or whether we are feeding Dryco and human milk alternately. My experience has been that when a woman has a scanty milk-supply she can nurse her baby regularly every three hours and give a bottle of Dryco immediately after nursing. This supplementary feeding supplies the de-

*Sold by the Dry Milk Co., New York.

ficiency in her breast-milk and is usually very well borne by the infant. Our guide when to increase the quantity of Dryco depends on the weight. If the infant shows no gain, then we should increase the quantity of Dryco. If there is a steady gain, then no increase is indicated.

In some cases when there is no gain in weight and the infant is too weak to nurse, we can pump off several ounces of breast-milk and concentrate it by the addition of one-half to one teaspoonful of Dryco or Klim to each feeding.

Klim* is a dry-milk product which I have used repeatedly at the Infantorium and also in my private practise. It is well adapted for the feeding of the premature infant and for the feeble infant. It is also used as a supplementary feeding when the breast-milk of a woman is insufficient in quantity or in quality. It is also of advantage when there is an acute gastric disturbance, such as vomiting from too rich feeding. One or more tablespoonfuls of Klim added to two ounces of hot water and one-half teaspoonful of sugar can be fed every three hours. It is usually very well assimilated. When the weight of an infant is stationary and there is no gastric disturbance, I have frequently increased the

*Prepared by the Merrell-Soule Co., Syracuse, N. Y.

quantity of the milk and added one or more teaspoons of Klim to each feeding.

It is an excellent substitute for cows' milk and is prepared by adding a tablespoon or more to each ounce of water. To make a four-ounce feeding, add four level tablespoonfuls to four ounces of warm water. Then add from one-half to one level teaspoonful of granulated sugar or Dextri-Maltose and it is ready for feeding.

CHAPTER XIV

PROPRIETARY INFANT FOODS

THE market is filled with a large number of patent infant-foods. This proves that there is a demand for something in addition to the methods of feeding in vogue at the present day. Physicians as a rule condemn the use of these foods and chiefly for the following reasons:

First. Because the laity, except in rare instances, are not competent to feed an infant by following directions on the label of a box of food. No shoe is made that will fit every baby's foot, and no infant-food made will agree with and be properly assimilated and digested by every baby. It is a well-known fact that individualism is more demanded in the feeding of infants than for any other treatment. The digestive functions are totally different in various individuals, and so it must be left for the intelligent physician to note the size of the body to be fed, study the infant's wants, note the condition of its digestive apparatus and, last but not least, the stool must be properly examined. Then and not until then, can any one prescribe the kind of food,

the amount of food, and the feeding interval demanded.

Second. No greater mistake is made than to suppose that because an infant has gained a few ounces and is gaining continuously, it is in absolute good health. When a large amount of starch or transformed starch, such as dextrinized starch, is fed to an infant, or when large quantities of sugar are given, there is usually a notable increase in weight. Bone and muscle, which are formed chiefly by the protein element of food, can not be replaced by the carbohydrate or fat-forming substances. The ambition of many mothers and nurses is to display with pride a big, fat baby and show large gains in weight. Not all plump babies are normal; in fact, fat babies are more susceptible to disease, as a rule, than lean babies.

Many a parent has been shocked to learn that his or her child has rickets, or soft bones, bow-legs, or a curvature of the spine. This can be detected to-day by an *X*-ray examination. It is a good plan to *X*-ray all fat children, because, altho many of them metabolize their food properly, they frequently develop fat instead of bone and muscle.

Proprietary foods if added in very large amounts will overtax the digestive apparatus and results in dyspeptic and enlarged stomachs.

Advantages of Proprietary Foods

Having pictured the dangers, it is but fair to state that there are very many virtues in these proprietary foods. I advise the use of many of these foods for infants six months old or older, especially for those requiring additional food during the period of dentition. To the formula of milk and barley water previously given, add one teaspoonful or more of Mellin's food or malt-soup to each feeding. When a tendency to constipation exists, Mellin's food or malted milk is especially indicated. At the Infantorium and the Nursery of the Heckscher Foundation for Children, we use Dextri-Maltose No. 3 for its nutritive, caloric and laxative properties. Horlick's food requires no milk. Nestlé's food is used with water or milk. If milk is overheated, as it is when subjected to sterilization or prolonged pasteurization, then a decided constipating tendency usually results. To prevent constipation by using these foods, milk or diluted milk should be simply warmed. When milk is boiled, constipation, due to the altered condition of the casein (curds), results.

There are many other good foods on the market. For an older child I frequently order Horlick's malted milk, a teacupful at a time, to modify constipation. Sometimes a teacupful in the morning is advantageous.

Supplementary Feedings

If the supply of breast-milk is scanty and

the infant cries after nursing, and has green stools; and if there is no gain in weight, a supplementary food consisting of three to six teaspoons of Klim dissolved in two ounces of water can be given after each nursing. Another excellent food to supplement scanty breast-milk, or when the mother is tired and needs rest, is Dryco—three to six teaspoons dissolved in three ounces of hot water.

Nestlé's food requires the addition of milk or water. It is an excellent substitute when breast-milk is scanty. It can not, however, replace whole milk. It has a very pleasant taste, and is well liked by infants. During an attack of diarrhea when milk is not well borne, until protein milk can be procured, *a few feedings* of four teaspoons of Nestlé's food dissolved in two ounces of water, repeated every three hours, may be substituted.

CHAPTER XV

CALORIC METHOD OF FEEDING

A CALORY is the amount of heat necessary to raise the temperature of one kilogram* of water 1° C. The determination of the heat-energy expressed by a given number of calories can be applied in estimating the food requirement of infants. A large number of specialists in infant feeding estimate the food requirement of an infant by the caloric method. The requirement for the first three months is 100 calories; therefore, an infant weighing 5 kilograms, requires 500 calories in twenty-four hours. Later on, the requirement is 80 calories, and some infants at the end of six months do not require more than 70 calories for each kilogram of weight. Emaciated and premature infants require 120 or more calories for each kilogram.

The simplest method of calculating the given number of calories in a pint or quart of food is as follows:

The caloric value of 1 ounce of 4 per cent. milk is 20; 16 times 20 calories equals 320

*A kilogram equals 2 1/5 pounds.

On pages 128-132 a series of formulæ are advised. These formulæ are somewhat different from those advised on pages 137-139 for infants of the same age. The variations are given so that one can begin with a weaker food and gradually increase until a stronger food is ordered.

calories to 1 pint, or 32 times 20 calories equals 640 calories to 1 quart.

20 ounces of 4 per cent. milk 20x20
400 calories
12 ounces barley water 12x2..... 24 calories
1 ounce malt-soup extract..... 80 calories

504 calories

FOODS AND CALORIC VALUE

(Food, 1 Ounce)	*Approximate Caloric Value*
Cream (16 per cent.)	54
Milk (4 per cent. cream)	20
Milk (2 per cent. cream)	15
Milk (1 per cent. cream)	12.5
Milk, fat-free	10
Whey	6
Condensed milk	132
Buttermilk	10
Albumin milk	13
Malt-soup extract	80
Malt-soup (formula as given)	22
Malt-sugar (by volume)	72
Malt-sugar (by weight)	117
*Malt-sugar (by weight)	110
Barley-flour (by weight)	102.5
Rice-flour (by weight)	102.5
Wheat-flour (by weight)	102

*Dextri-Maltose, Mead, Johnson & Co.

The following diets may be compared with the series of diets given on pages 137 and 138. While they give a different set of figures, they are better for the smaller infant; if the food agrees well, we can easily change to those stronger formulas.

DIET FROM BIRTH TO ONE YEAR

The weight, not the age, is the determining factor in prescribing food. The average number of calories required in feeding normal infants is 40 to 50 calories to each pound of weight during the first three months; from the third to the sixth month 40 to 45 calories, and from the sixth to the ninth month 35 to 40 calories.

To sustain life during the first six months, 30 calories would be sufficient. These figures do not apply to subnormal or *premature* infants, who require a much larger number of calories. In many premature infants 100 or more calories may be required to ensure growth, development, and increase in weight.

In using concentrated feedings it is necessary to give one or more ounces of water between feedings.

AT BIRTH—SEVEN POUNDS †

Whole Milk (Grade A).....10 ounces
Water ..... 8 ounces
Dextri-Maltose or Granulated Sugar*
1 ounce

Heat milk and water to the steaming point (140° F.); steam about 20 minutes; add the sugar (known as the carbohydrate) and divide

† Read foot note page 126.
* Either of these carbohydrates may be used.

into seven feedings. Feed as much as the infant will take every three hours.

TEN DAYS

If the infant is satisfied, continue the above formula. If there is no gain, or if there is loss of weight and the infant seems hungry, increase to:

Whole milk.....13 ounces
Water ..... 6 ounces
Dextri-maltose or granulated sugar
1 ounce

ONE MONTH—EIGHT POUNDS

Whole milk.....16 ounces
Water ..... 5 ounces
Dextri-maltose or granulated sugar
1 ounce

Divide into seven feedings of three ounces each. Feed every three hours. All infants should receive five drops of orange-juice daily after the first month, or two drops of cod-liver oil once a day if constipation exists. At three months increase or double the dose of the orange-juice or the cod-liver oil. The above are added for their vitamin content. Gradually increase to:

TWO MONTHS—NINE POUNDS

Whole Milk .....18 ounces
Water ..... 6 ounces
Dextri-Maltose or Granulated Sugar
1 ounce

Divide into six feedings of four ounces each. Feed every four hours.

THREE MONTHS—10½ POUNDS

Whole milk (Grade A).....20 ounces
Water ..... 4 ounces
Dextri-maltose or granulated sugar
1 ounce

Divide into six feedings of four ounces each. A level teaspoonful of spinach pulp may be added to one feeding after the third month

FEEDING SCHEDULE

6:00 A.M.....Bottle
8:00 A.M.....½-ounce orange-juice
9:00 A.M.....Bottle
12:00 NOON.....Bottle
3:00 P.M. 1 ounce spinach-, tomato-, or carrot-juice and bottle
6:00 P.M.....Bottle
10:00 P.M.....Bottle

FOUR MONTHS—12 POUNDS

Whole milk.....21 ounces
Water..... 3 ounces
Dextri-Maltose..... 1½ ounces

Divide into six feedings of 4 ounces each.

FIVE MONTHS—13 POUNDS

Whole Milk.....22 ounces
Water..... 5 ounces
Dextri-Maltose..... 1½ ounces

Divide into six feedings of 4½ ounces each.

SIX MONTHS—14 POUNDS

Whole Milk.....25 ounces
Water..... 5 ounces
Dextri-Maltose or Granulated Sugar 1½ ounces

At six months give, with the second feeding, six teaspoonfuls of wheatena or oatmeal.* Thin with a little of the formula from the infant's bottle.

Divide into six feedings of 5 ounces each.

FEEDING SCHEDULE

6:00 A.M.....Bottle
8:00 A.M.
or
5:00 P.M.....Orange-juice
9:00 A.M.....Cereal* and bottle
12:00 NOON.....Vegetable and bottle
3:00 P.M.....Bottle
6:00 P.M.....Crushed zwieback and bottle
12:00 M.....Bottle

NINE MONTHS—18 POUNDS

Whole Milk.....30 ounces
Water..... 5 ounces
Dextri-Maltose or Granulated Sugar 1½ ounces

Divide into five feedings of 7 ounces each.

At nine months the baby may have six teaspoonfuls of fruit-juice at 9 A.M., four teaspoonfuls of crushed zwieback at 2 P.M., six teaspoonfuls of vegetable-pulp at 5 P.M., and

*For the preparation and time for cooking cereals, see page 145.

six teaspoonfuls of farina* or arrowroot† with the 6 P.M. bottle.

ONE YEAR—21 POUNDS

Whole Milk	35 ounces
Dextri-Maltose or Granulated Sugar	1½ ounces

Divide into five feedings of 7 ounces.

At one year, the baby may have one ounce of orange- or pineapple-juice at 9 A.M., the yolk of a hard cooked egg at 10 A.M., four teaspoonfuls of crushed zwieback at 2 P.M., and eight teaspoonfuls of farina or arrowroot at 6 P.M.

TOP MILK FEEDING

The feeding of cream or top milk, which consists of cream, is not sucessful in most cases. My experience has been that infants fed with milk high in fat percentages invariably suffer with colic, vomiting, eructation, and have small masses or fat curds in the stool. When infants do not gain, the quantity of milk should be increased, the sugar should be increased, and starchy foods, such as cereals and

*For the preparation and time for cooking cereals, see page 145.

†Arrowroot is made as follows:

ARROWROOT PUDDING

Arrowroot	1 teaspoon
Granulated sugar	1 teaspoon
Milk	4 ounces
Water	3 ounces

Boil ten minutes. May flavor with one drop of essence of vanilla. Feed slowly with spoon and give a half bottle of milk, if hungry, after this pudding.

vegetable-pulp, should be added to the dietary. We must not fear giving cereals, such as farina or hominy, for experience has shown that cereals may be fed to newborn infants without any danger.

REPEATED AND CONTINUOUS VOMITING

Infants may be born with a nervous and muscular irritability which manifests itself by rigidity or stiffening of the muscles of the arms and legs. These infants cry continuously because of the pain resulting from the spasmodic contraction of the muscles. This spasmodic contraction affects the muscles of the stomach, and as a result vomiting is induced.

The condition is encountered in the newly born. It may also develop after several weeks. It occurs in the breast-fed as well as in the bottle-fed infant. Invariably after a meal, be it from breast or bottle, vomiting results. The vomiting follows a drink of water as well as a milk feeding. Even when the food is diluted, vomiting continues as when stronger food is given. The weight suffers because of this continued vomiting. Such infants are called hypertonic infants.

Under proper medical supervision most of these cases recover. If the bowels move daily we should not consider any surgical operation.

If the infant vomits frequently, and the weight is stationary, and, most serious of all, if there is no movement of the bowels, then an operation may be required.

Such cases are too serious to permit experiment; they require the best of skill and good judgment of the physician to effect an ultimate cure. This class of cases does very well with thick cereals fed by spoon immediately before each bottle feeding. Many of these cases do well with cereal alone. Cream of wheat or farina may be given.

Thick Cereal to Control Vomiting

Regardless of the infant's age we feed several teaspoons of thick cereal* before the liquid bottle. In many instances when the liquid milk produces vomiting or severe regurgitation, thick cereal—so thick that it will not flow from a spoon—will allay the irritability of the stomach and also control the vomiting. By feeding this thick cereal we will also have an increase in weight and good thick stools. A rapid change from a liquid diet to a thick cereal diet, and cereals only, has worked admirably in a large series of puny infants.

It may be necessary in severe vomiting to stop all milk and water feeding and give only cereals for at least three days to one week then gradually add 1 oz. of milk at each feeding.

* See page 158.

Age	Weight	Stomach Capacity	Number of Feedings	Interval of Feeding
Birth to 3 weeks	7 pounds	2½ ounces	7	3 hours
3 weeks to 6 weeks	8 pounds	3 ounces	7	3 hours
6 weeks to 2 months	10 pounds	3½ ounces	7	3 hours
2 months to 4 months	11 pounds	4 ounces	7	3 hours
4 months to 6 months	12 pounds	5 ounces	6	4 hours
6 months to 9 months	14 pounds	6 ounces	5	4 hours
9 months to 12 months	17 pounds	6 ounces	5	4 hours

BOTTLE FORMULAS

	Ounces	Calories	Caloric Requirements
At Birth:			
Whole Milk	13	260	
Hot Water	8	60	320
Dextri-Maltose	½		
Six Weeks:			
Whole Milk	14	280	
Hot Water	7	120	400
Dextri-Maltose	1		
Two Months:			
Whole Milk	17	340	
Hot Water	4	120	460
Dextri-Maltose	1		
Three Months:			
Whole Milk	19	380	
Hot Water	9	120	500
Dextri-Maltose	1		
Four Months:			
Whole Milk	22	440	
Hot Water	8	120	560
Dextri-Maltose	2		
Five Months:			
Whole Milk	26	520	
Hot Water	9	240	760
Dextri-Maltose	2		
Six Months:			
Whole Milk	35	700	
Hot Water	3	240	940
Dextri-Maltose	2		

Formula No. 1 (for an infant from birth to three weeks old, weighing about 7 pounds, requirement 318 calories):

Whole Milk	13 ounces
Hot water	8 ounces
Dextri-Maltose	4 teaspoons

Mix thoroughly and heat in a saucepan until steam rises. Continue steaming at the same temperature for fifteen minutes. Divide into seven bottles of 3 ounces each. Feed every three hours by day: every four hours at night. Insert large stoppers of non-absorbent cotton in the necks of the bottles. Place in a refrigerator, but not on ice. Warm before feeding by placing bottle into a deep saucepan of hot water until the food reaches body temperature.

Formula No. 2 (for an infant from three weeks to six weeks old, weighing about 8 pounds, requirement 364 calories):

Whole Milk	14 ounces
Hot water	7 ounces
Dextri-Maltose	8 teaspoons

Divide into seven feedings of 3 ounces each. Feed every three hours.

Formula No. 3 (for an infant from six weeks to two months old, weighing about 10 pounds, requirement 364 calories):

Whole Milk.....17 ounces
Hot water..... 4 ounces
Dextri-Maltose..... 1 ounce

Divide into seven feedings of 3 ounces each. Feed every three hours.

At three months additional foods may be given as in the following schedule:

6:00 A.M.....Bottle
8:00 A.M.....3 teaspoons strained fresh orange- or pineapple-juice or tomato-juice
9:00 A.M.....Bottle
12:00 P.M.....Bottle
3:00 P.M.....Bottle
5:00 P.M.....1 teaspoon vegetable-pulp forced through a strainer. (Cooked spinach, carrots, or string beans)
6:00 P.M.....Bottle
10:00 P.M.....Botttle
2:00 A.M.....Bottle (if awake).
Drink of water between meals.

Formula No. 4 (for an infant from two to four months old, weighing about 11 pounds, requirement 500 calories):

Whole Milk.....19 ounces
Hot water..... 9 ounces
Dextri-Maltose..... 1 ounce

Divide into seven feedings of 4 ounces each. Feed every three hours.

Formula No. 5 (for an infant from four to six months old, weighing about 12 pounds, requirement 546 calories):

Whole Milk.....22 ounces
Hot water..... 8 ounces
Dextri-Maltose..... 2 ounces

Divide into six feedings of 5 ounces each. Feed every four hours.

Formula No. 6 (for an infant from six to seven months old, weighing about 14 pounds, requirement 637 calories):

Whole milk.....26 ounces
Hot Water..... 9 ounces
Dextri-Maltose..... 2 ounces

Divide into five feedings of 7 ounces each. Feed every four hours.

Formula No. 7 (for an infant from nine to twelve months old, weighing about 17 pounds, requirement 773 calories):

Whole milk.....35 ounces
Hot Water..... 3 ounces
Dextri-Maltose..... 2 ounces

Divide into five feedings of 8 ounces each. Feed every four hours.

AN INFANT FROM TWELVE TO EIGHTEEN MONTHS OLD

Use Fresh, Raw Milk Warmed to Feeding Temperature

6 A.M. Milk, 8 ounces.
Huntley & Palmer biscuit.

8 A.M. Juice of an orange or 1 ounce pineapple-juice.

9 A.M. Saucer of steamed oatmeal, farina, hominy, cream of wheat, yellow cornmeal, or wheatena, served with milk or thin cream.
One piece zwieback, rusk or toast with butter.
Milk, 6 ounces.

12 Noon One-half ounce steak or roast-beef juice, baked potato with yolk of hard-cooked egg, and stewed prune pulp. Or:

Chicken soup with chopped noodles, rice with yolk of hard-cooked egg, and stewed peaches. Or:
Beef soup with farina or carrots, spinach with yolk of hard-cooked egg, and stewed apricots or apple sauce.
(On very warm days give cold consommé instead of warm soup.)

3:30 P.M. Milk, 8 ounces.

Saucer of arrowroot or cornstarch pudding, junket or cream cheese on biscuit. 6 P.M.

If awake and restless, milk, 8 ounces. 10-11 P.M.

(To make a hard-cooked egg yolk—Place the egg in a pan and cover with boiling water. Do not allow the water to boil after the egg is put in, but keep it hot for 45 minutes. Cooked in this way the yolk will be formed, but mealy and easily powdered.)

FROM ONE AND ONE-HALF TO TWO YEARS

Milk, 8 ounces. 6-7 A.M.

Two pieces of zwieback, rusk or Huntley & Palmer biscuits. 8 A.M.

Juice of an orange.

Steamed farina, oatmeal, hominy, or cream of wheat chopped dates or figs, raw or stewed; a coddled or poached egg, or arrowroot pudding. 10 A.M.

Crisp toast, buttered.

Milk, 6 ounces.

Beef or chicken broth* thickened with sago, rice, or farina, clear broth with yolk of egg, or 1 ounce steak or roast-beef juice. 1-2 P.M.

*When fresh soups are not available then canned soups such as the Franco-American soups may be used.

Baked potato, spinach, carrots, peas, squash, turnips, string beans, beets, asparagus tips or celery (all stewed).*

Stewed prunes, stewed figs, baked apple or apple sauce. Huntley & Palmer biscuits, graham wafers or lady fingers.

5:30-6 P.M. Soft-cooked egg, junket, custard, cornstarch, tapioca, or farina pudding, or cream cheese on biscuit. Wheatsworth cracker.

Half of a sliced or mashed banana or raw scraped apple.

Cup of milk or weak cocoa.

FOR A CHILD OF THREE YEARS AND OLDER

7:30 A.M. Juice of an orange, or fresh fruit in season.

8 A.M. Yellow cornmeal, cream of wheat, oatmeal, Force, puffed rice, or shredded wheat, with cream or milk and sugar.

Coddled egg with one strip broiled bacon.

Toast, graham or whole wheat bread, with butter. Cup of milk.

12 Noon Chicken or beef-broth thickened with farina, rice, barley, or home-made noodles, or:

One ounce steak or roast-beef juice over baked potato.

*Fresh vegetables should be used whenever possible Canned vegetables may be used when fresh are not obtainable.

Broiled lamb chop, steak, chicken, squab, roast beef, mackerel, halibut or trout.

Spinach, peas, beans, carrots, asparagus, grated corn, tomatoes, celery, or onions (all boiled).

Stewed fruits or berries in season.

Unsweetened crackers with fruit jam, or fruit, such as bananas or a raw apple. On cold days a cup of malted milk (four teaspoons Horlick's malted milk to a teacup hot water) or a cup of cocoa. Warm days, buttermilk. 3:30 P.M.

Shredded ham omelet, scrambled egg, cornstarch or rice pudding, custard, Philadelphia cream cheese, macaroni or noodles. 6 P.M.

Cup of cocoa or milk.

Fresh fruits in season.

Bread and butter.

CANDY

The child's craving for sweets is natural, but under no consideration should they be given whenever desired, but when given they should be given either with, or just after, a meal, never before a meal when they will disturb digestion and take away the appetite. Plain taffies, barley sugar, and hard candies, which are simply flavored sugar, are preferred. Cream-filled chocolates and fancy candies should never be given. Pure milk

chocolate, while nourishing, is hard to digest, and must be given in very small quantities. Children under three years should have peppermints only.

CAKE

Infants and most children crave sweets, hence jelly, jam, and cake form an important part of most household diets. A moderate quantity of sweetened cake such as tea biscuits, sponge cake, lady fingers, or sweetened rusk (zwieback) is nutritious and helpful, but it is better for the mother to take the advice of a physician rather than to be guided by the cravings of infancy and childhood. Upset stomachs and bowels frequently follow the abuse of large quantities of cake. As a rule, cake should be given as a dessert and not between meals. When cake is given between meals, it usually upsets the child and interferes with the normal appetite.

FRUITS

Fruits, as a rule, are easily digested by most children. For very young children stewed fruits (with the exception of orange- and pineapple-juice) are preferable to raw, because the cellulose, or woody fiber, is softened during cooking. If covered while they are

cooking very little of their nutritive value will be lost.

All fruits to be eaten raw must be thoroughly washed, even those which are peeled. They must be neither under-ripe nor over-ripe. The banana contains more nourishment than any other fruit, and contrary to the popular belief, is not indigestible. Most children of three years can digest them perfectly. But a banana is not ripe until black spots appear on the peel. The fruit should be peeled, then scraped of the fuzzy covering, sliced, and served with milk.

PROPORTIONS AND TIME FOR COOKING CEREALS

½ Cup	Cups Salted Water	Boiling Time
Rice	1½	30 minutes (steam 40 minutes)
Farina	2	30 minutes
Rolled oats	1½	1 hour
Hominy	2	2 hours
Cornmeal	2	3 hours
Wheatena	2	1 hour
Cream of wheat	2	1 hour

For the sake of variety and to tempt a child who is not fond of cereals, stewed figs, dates, dried currants, or seeded cherries may be added just before serving, or they may be cooked with the cereals.

Boiled Rice

Rice must be cooked differently from other cereals. There is danger of overcooking and

having it soggy. Add ½ cup of rice slowly to 1½ cups boiling water that has been salted. Let it boil rapidly without stirring (cover the kettle) for 25 to 30 minutes, or until soft. Then pour it into a colander to drain. Stand it in the oven, leaving the door wide open, or on a very low flame, to dry for a few minutes. This drying evaporates the moisture, leaving the rice soft and perfectly dry. Serve with bits of raw butter, or stewed fruit.

Oatmeal or Crushed Oats

Add one heaping tablespoon of crushed oats and ½ teaspoon of salt to a pint of water. Stir until the salt is dissolved, and stand it on the back part of the fire over night. In the morning stand it over a hot fire, and let it boil one hour without stirring. Serve with chopped raw or stewed figs.

Farina

Add ½ cup farina to 2 cups salted water, sifting it in slowly, with constant stirring. Cover, and boil slowly for 30 minutes. Serve with chopped stewed dates.

Farina Soup

To one pint of meat broth, gradually add, while stirring, 1 to 1½ even tablesponfuls of farina or cream of wheat and boil down to one cup (½ pint) in about 20 minutes.

Arrowroot or Cornstarch Pudding

Dissolve one rounded teaspoon of arrowroot or cornstarch in 4 ounces of water, and 4 ounces of milk, add 1 teaspoon of granulated sugar and boil 10 minutes.

May be flavored with a few drops extract

of vanilla or with a level teaspoon of cocoa or chocolate.

VEGETABLES, CEREALS, MISCELLANEOUS RECIPES

Vegetables

Cook vegetables only long enough to make them tender. Starchy vegetables should be placed in boiling water. Vegetables having a sweet, mild-flavored juice, such as string beans and green peas, should be cooked in a covered utensil in a small quantity of water which is served with the vegetable. Vegetables having a strong-flavored juice should be cooked uncovered. These vegetables are more palatable if creamed. Vegetables should not be salted until they have cooked ten minutes, because the salt tends to draw out the juices.

	Time for Cooking
Spinach	30 to 40 minutes
Lettuce	30 to 40 minutes
String-beans	30 to 40 minutes
Beet greens	40 to 50 minutes
Asparagus tips	15 to 30 minutes
Grated corn	15 to 30 minutes
Kohlrabi	20 to 40 minutes
Carrots (young)	40 to 60 minutes
Peas	20 to 30 minutes

White Sauce for Creamed Vegetables

1 level tablespoon flour.
1 level tablespoon butter or fat.
½ level teaspoon salt.
½ cup liquid (water, milk, vegetable-juice or meat stock).

Boiled Spinach

Spinach and all green salads must be carefully washed through four or five waters, or until all sand and dirt are removed. When clean, place in double boiler, cover, and steam 30 to 40 minutes, or until tender. If the leaves are old and not very juicy, one or two tablespoonfuls of water must be added. If the leaves are young and tender they will draw sufficient moisture. As the salt tends to draw out the juices it should be added when the leaves are placed in the boiler.

Spinach-juice

After steaming the spinach, squeeze out the juice by hand, with a lemon squeezer, or a vegetable press, or press the leaves with a spoon. The overflow in the spoon is the spinach-juice.

Spinach-water

Spinach-water is spinach-juice diluted with eight times its volume of water. One teaspoon of pure spinach-juice if added to one ounce of water gives the spinach-water.

Spinach-pulp

After steaming the spinach, chop the leaves and force through a fine sieve or cheese-cloth. Throw away the tough fiber that can not be forced through the sieve.

Carrots

Boil some washed carrots in water until they are thoroughly done; then peel, slice, mash, and add them to the water in which they were first boiled and, if necessary, boil the mixture in a double-boiler until it becomes a thick mush. To this add a very slight

amount of salt, altho this addition is not necessary, and in some cases may not be desirable.

Potatoes (Boiled)

Boil some washed potatoes in just enough water until they are thoroughly done. Remove the skins, mash, and add to the water in which the potatoes were first boiled, and boil the mixture in a double-boiler until it becomes a thick mush.

Of course, one may use part of the potatoes boiled in the ordinary way as for the family meal, altho some of the nutritive qualities are lost by this method.

Carrot-and-Potato-Water

To one cup of finely cut, cleaned carrots and one cup of finely cut, cleaned potatoes, add one quart of water, and bring to a boil. Keep boiling over a medium flame for 25 to 30 minutes, or until the carrots and potatoes are thoroughly done. Press through a clean, fine sieve and mix well with the carrot- and potato-water. Then pour through a fine sieve or clean cloth, and, if necessary, add enough boiled water to make one pint of yellowish carrot-water. Press through the cheese-cloth or fine sieve enough carrots and potatoes to give the water a yellowish color.

If no carrots are on hand, beets may be used instead. Carrots, however, are always to be preferred.

Cereals are made from hard grains and

contain much starch. They should be cooked only long enough to make them easily digested. To steam farina several hours, as advocated by some, is unnecessary and harmful. Farina requires 30 minutes cooking. Rice can be thoroughly cooked in 30 to 40 minutes. Sift the dry cereal slowly into salted, boiling water, stirring all the while to prevent lumping. The pulverized cereals, or cereal flours, should first be mixed with cold water, then poured slowly into boiling water. Cook five minutes directly over the fire, then cover and place in the double-boiler, and steam for the time required.

When the coal range is used, a very convenient way to cook the cereal is to start it cooking at suppertime and leave closely covered on the back of the range all night.

MISCELLANEOUS RECIPES

Barley Water

To make barley water add one tablespoonful of pearl barley to one quart of cold water, boil two hours, adding water from time to time. Strain through muslin and add enough boiled water to make one quart. When the barley flour is used mix two teaspoonfuls of the flour in a little cold water, add one quart of water and boil fifteen minutes. Strain through muslin if there are any lumps, and add enough boiled water to make one quart.

Rice water is made in the same manner as barley water, one tablespoonful of rice being used to one quart of water. When rice flour is used, add two teaspoonfuls to a quart of water. **Rice Water**

Oatmeal water is made in the same manner as barley water. Use one and one-half tablespoonfuls of oatmeal to one quart of water. **Oatmeal Water**

Gruel is made by adding two teaspoonfuls of rice-flour, barley-flour, or oatmeal to one pint of cold water, and boiling briskly for one-half hour. Add a pinch of salt and a teaspoonful of granulated sugar. **Gruels**

To make albumin water add the white of one raw egg to one-half pint of water. Pour the egg and water into a clean bottle and shake well. Feed through a nipple or by spoon. **Albumin Water**

A nourishing drink is made by adding the juice of half a lemon to the yolk of a raw egg; let it stand for five minutes, and then add two teaspoonfuls of granulated sugar and five ounces of water. **Nutritious Lemonade**

Beat the white of one raw egg with one teaspoonful of granulated sugar and add the juice of one orange and five ounces of water. **Nutritious Orangeade**

Take one-half pint of fresh cows' milk and heat it lukewarm (about 115° F.); add one teaspoonful of essence of pepsin and stir just enough to mix. Pour it into cups and let it **Junket**

stand in a cool place until firmly curdled. Serve plain or with a little sugar. Junket may also be made by breaking a junket tablet* into a little water, stirring it into half a pint of milk and heating it slowly, stirring constantly; then set aside to cool. The junket may be flavored as above.

Whey

Curdle warm milk with the essence of pepsin as directed in making junket. After the milk has curdled or clotted beat up the curd with a fork and strain it. The liquid is the whey which may be sweetened by adding one teaspoonful of maltose.

Beef-Juice

Expressed beef-juice is obtained by slightly broiling a piece of lean beef, and squeezing the juice from it with a lemon squeezer or a meat press. One pound of steak yields from two to four ounces of juice. Flavor the juice with a little salt and slightly warm it by standing a cup containing the beef-juice in a bowl of hot water.

Broths

Take one pound of lean mutton, veal, beef, or chicken, including some of the bone, a sprig of parsley and a blade of celery for one quart of cold water containing a pinch of salt. Cook slowly down to about 8 ounces, for three hours, adding water from time to time, strain through muslin and remove the greater part of the fat.

*Junket tablets may be obtained at any drug store.

Weak Tea for Thirst

Weak, cold tea (English Breakfast) made by steeping about three tea leaves in one cup of boiling water for two minutes, is very valuable to quench thirst in a baby suffering with diarrhea. Two or three teaspoonfuls may be given at one time and repeated every half-hour. Besides the cooling effect, tea has a decided astringent property which makes it valuable in diarrhea.

Gelatin Pudding

A delicious dessert for a child two years old or older is made with gelatin powder and hot water. Cox's, Knox's, or Price's gelatin powder may be used. The directions for the proper proportion of powder and water will be found on each label.

Custard

Beat together one fresh egg and a teaspoonful of granulated sugar; pour into a cup and add four ounces of milk, then tie over the cup a piece of linen, place the cup in a shallow saucepan half full of water, and boil ten minutes.

Soft-cooked or Coddled Egg

Place a fresh egg in enough boiling water to cover it, move it to the back of the stove and let it stand five minutes where the water will keep hot, but not boil. Serve with a pinch of salt. An egg to be properly cooked should never be boiled in boiling water, as the white hardens before the yolk is cooked. The yolk and white should be of a jelly-like consistency.

Hard-cooked Egg Yolk

Place the egg in a pan and cover it with boiling water. Do not allow the water to boil after the egg is in, but keep it hot for 45 minutes. Cooked in this way, the yolk will be mealy and easily powdered.

Toast

Place a slice of bread in the oven, and dry until crisp but not brown. Place it on a toast fork and hold it over the flame of a coal fire for a few seconds until brown on both sides. Butter while hot.

Raw Scraped Beef

Meat pulp is prepared by scraping with a dull knife a piece of raw or underdone round steak. Add salt to taste. The raw yolk of egg may also be added to the meat.

Baked Flour (Flour Ball)

Tie several pounds of wheat-flour in a cheese-cloth bag and boil in a pot of water for five hours. Remove from water and place in oven, and bake until quite brown on the outside. It will require from two to three hours slow baking. Break open and throw away the brown shell; the remainder, the baked flour, must then be grated into a powder. This food resembles imperial granum which is sold on the market. To one teaspoonful of food boiled with four ounces of water, add one teaspoonful of granulated sugar and four ounces of milk. Let it boil up together and divide into two feedings of four ounces each.

Buttermilk Lactic Acid Milk

Boil one quart of milk, and, when cool, skim off the skin that rises. Add one teaspoonful

of the pure culture of the lactic-acid bacillus, or one lactic-acid tablet containing the bacillus (can be bought in any drug store). Set this inoculated milk in a warm place (temperature about 100° F.) for twenty-four to thirty-six hours. The lumpy mixture must then be thoroughly shaken and, if of a thick, creamy consistency, must be placed in a cool place to retard further souring.

Malt Soup

Dissolve 3½ ounces of malt soup in one pint of warm water. Then mix 3 ounces (in measure) or 2 ounces (in weight) of wheat-flour in one pint of milk. When the wheat-flour and milk solution is strained it is added to the malt-soup extract solution and slowly brought to a boil, being stirred constantly over a slow fire. Cool it off quickly by standing it in cold water.

Prune Butter

1 lb. of large fleshy prunes.
1 cup of sugar and the grated rind of one lemon.

Wash the prunes, put in a pot, and add enough water to cover them. When the cup of sugar and the grated rind of one lemon is added, cook until the contents begins to bubble, then cover and let it simmer for a few hours. Stir frequently with a wooden spoon.

Prune Juice

Take one-half pound of prunes, wash thoroughly, cover with cold water, and soak over

night. In the morning place on the stove in the same water and cook until tender, add one teaspoonful of sugar, and strain.

Apple Sauce

Take six apples, peel and cut them in quarters. Place them in an enameled dish, sprinkle over them one tablespoonful of granulated sugar, add one cup of cold water, put the dish on the stove and boil the apples to a sauce about thirty minutes.

CHAPTER XVI

VOMITING—COLIC—HICCUP —CONVULSIONS

VOMITING

Food Vomiting

THERE are many causes of vomiting during infancy. In some instances vomiting results from drinking too hastily, gulping the food, and it may result from over-feeding. Very rich food containing a high percentage of fat, and cream feedings frequently cause vomiting. Most infants regurgitate a little of their food, whether they are breast-fed or bottle-fed. This overflow is usually caused by an active peristalsis and has no significance whatsoever. When infants vomit ounces of food, and eject the same forcibly (the so-called "projectile" vomit), then some reason must be found. As a rule such cases should not be supervised by a nurse or mother, but should be referred at once to a physician. Pyloric spasms or pyloric irritation is a very common cause of vomiting. When large quantities of food are ejected, then there will be a corresponding loss of weight. In some instances where no real disease is at the bottom of the trouble, vomiting can be modified

and sometimes entirely stopped by feeding several teaspoonfuls of cereal before each feeding. A thick pap consisting of a crushed rusk scalded with hot water may be given once or twice a day without danger to these small infants, but the best method of controlling vomiting is by using the following:

CEREAL (THICK) NO. 1

Water	16 ounces
Farina or Cream of Wheat	4 ounces
Salt	1 teaspoonful

Boil water, add salt, then cereal gradually, stirring constantly. Add carbohydrate. Cook about one hour in double-boiler. Stir occasionally.

CEREAL (MEDIUM) NO. 2

Milk	18 ounces
Water	8 ounces
Farina or other cereal	3 ounces
Salt	1 teaspoonful

Boil milk and water, add salt, stir cereal in gradually. Cook in double-boiler about one hour. Add carbohydrate as ordered.

CEREAL (THIN) NO. 3
(Bottle-feeding)

Milk	18 ounces
Water	8 ounces
Farina or other cereal	2 ounces
Salt	1 teaspoonful

Boil milk and water, add salt, stir cereal in gradually. Cook in double-boiler about one hour. Add carbohydrate as ordered.

Thick cereals given in one-third teaspoonful portions, and placed as far back in the mouth as possible, will be more readily taken than when placed in the front of the mouth. Very young infants, from one to two months old, will swallow the cereal if spread on the tongue with a small wooden spatula, followed by a few swallows of the milk formula. While some small infants will frequently take from three to six teaspoonfuls of a thick pap, other infants will take but one teaspoonful divided into four portions.

After improvement is noted, we can try the thinner cereal, number 2; later number 3.

An important point to remember is that infants who vomit always lose weight. When cereal paste (number 1) has been taken for several days, a gradual and steady gain in weight will follow.

In other severe cases it may be well to discontinue the bottle and give nothing but three, four, or five teaspoonfuls of thick cereal, so thick that it will remain on an inverted spoon. This can be fed every three hours. It is very useful to allay gastric irritability and may be continued for several weeks with very good results. When vomiting ceases, we can then resort to bottle-feeding.

Vomiting may be caused by disease; hence repeated vomiting with or without fever

Due to Concussion

means something more than a trivial stomach complaint. For example: If a child falls down a flight of stairs and continues to vomit, such vomiting is due to concussion of the brain.

Due to Disease

If a child is developing scarlet fever the first symptom usually noted will be repeated attacks of vomiting. Brain-fever and tuberculous meningitis usually begin with vomiting. Fever, convulsions, nervous twitchings, and gradual loss of weight are evident. No amount of changing of the food formula will relieve such attacks.

COLIC

Colic is usually caused by improper feeding. If we have a very high fat percentage, then indigestion will occur with fermentation and gases, resulting in colic. Such infants usually have loose greenish or yellowish stools and suffer intense pain. When colic returns after each feeding, then the food is at fault and must be changed. Colic in this last instance is due to fat-indigestion.

Colic is also due to sugar-indigestion. It frequently follows cream feedings, hence, the indication would be to reduce the fat by adding water. Some children have loose bowels, cramps or colic, fermentation, and flatulency when sugar is fed. They may also have

rashes, such as eczema or hives, from sugar-poisoning. The treatment consists in the withdrawal of the sugar and substituting another form of sweetening. Karo sirup or honey is sometimes better adapted not only for sweetening, but also to supply the required quantity of carbohydrate necessary for the infant. As a rule infants tolerate very high percentages of sugar. The latter applies to malt-sugar or cane-sugar. Milk-sugar usually causes colic and loosens the bowels. I discarded it many years ago because of its irritant action on the intestinal epithelium or lining.

When colic exists, baby will draw up his legs on the abdomen and cry and scream. The abdomen is usually distended and if the ear is placed over the abdomen a distinct rumbling noise can be heard. No amount of rocking or soothing will comfort the baby until the colic is relieved. A hot-water bag, or a warm flaxseed poultice, should be applied to the abdomen. Rubbing the abdomen with warm sweet-oil, as described in the section on massage, will usually relieve the pain. One drop of essence of peppermint to a teaspoonful of warm water may be given every fifteen minutes until baby is soothed. *Injections of warm soap water into the bowel will instantly relieve the colic.* When colic recurs, the food

requires modification. As a rule we must add less milk and increase the diluent, be it rice or barley water.

HICCUP

Hiccup is due to a spasm of the diaphragm. Firm pressure made with two fingers over the stomach, below the breast-bone, will frequently check this spasm. Such pressure should be renewed from time to time. When hiccup recurs, one-quarter teaspoon of bicarbonate of soda in two teaspoons of warm water may be given. If this does not check the spasm, give one dose of fifteen drops of paregoric in two teaspoons of warm water and repeat the dose in three hours if necessary. A very tight abdominal bandage will frequently relieve hiccup.

CONVULSIONS

Convulsions usually signify irritation of the central nervous system resulting in spasms. The most frequent cause of convulsions is by stagnant fermented food in the intestine, usually from over-feeding. It is wise, therefore, regardless of the cause of the convulsion, to give a soap-water enema of one pint of water, quite cool, to empty the bowel and to relieve stagnant fecal matter. No infant can swallow during a convulsion, hence we should always

abstain from giving medicine or food during a spasm. Do not give an injection for the bowel until the spasm is over. A hot tub-bath to which two tablespoons of mustard have been added will aid in stopping the convulsion. Then give the injection for the bowel. An ice-bag applied to the head, or ice-cold cloths are usually helpful.

When convulsions appear, the muscles of the arms and legs are usually stiffened, the facial muscles are distorted, the eyes roll upward, the jaws are firm, the teeth locked, and frothing of the mouth may take place. When convulsions occur the physician should be summoned; until then, the following general rules should be followed:

Mustard Foot-bath

The bath should not be prolonged more than three minutes. If the spasm continues after the mustard foot-bath has been given, then a pint of soap-water should be injected into the bowels as an enema. This will empty the bowel and frequently relieve the spasm.

Convulsions a forerunner of Disease

Many diseases are ushered in by convulsions. Not only brain-fever (meningitis) but even measles and grippe. Pneumonia and scarlet fever and infantile paralysis have been preceded by a convulsion. Regardless of its cause, a convulsion should always be treated as described above until a physician can see the infant.

Due to Worms

Convulsions may be caused by intestinal irritation resulting from worms, and if so, dislodging the worms is imperative. By this means we can prevent a recurrence of the convulsion.

Teething

Teething is a physiological process. No one believes that while the hair grows or the nails grow, convulsions might occur. This also applies to teething. Normal dentition is never preceded by a convulsion. It is quite true that the gums may be tender, but they never cause such profound irritation of the central nervous system as to cause a convulsion.

Dentition is a normal growth similar to the growth of the nails.

CHAPTER XVII

CONSTIPATION

THE baby's bowels should move at least once or twice in every twenty-four hours. If the action of the bowels is sluggish, baby will not have a movement every day. This sluggish action can be caused by different conditions, but is most often due to faulty feeding. When the food is too concentrated and we do not give sufficient water between feedings, constipation results. If the baby is fed at the breast, the mother must see that her breast-milk is examined once a month to determine the percentage of cream. If a deficiency of cream exists, then the mother's diet should be improved by giving her vegetables at least twice a day, and she should have plenty of exercise. Eggs and bacon are valuable aids for a thin milk and should be taken by the mother every day.

In Breast-fed Babies

If the baby is bottle-fed, a teaspoonful of Mellin's food or a heaped teaspoonful of Mead's Dextri-Maltose No. 3 should be added to each feeding. Orange-juice should be given daily. The addition of a teaspoonful of malt-soup to every pint of food will afford relief

In Bottle-fed Babies

in many cases. The use of Bulgarian milk or fermented milk or one or more teaspoons of the Bulgarian bacillus given immediately after the morning feeding, will usually aid in relieving the constipation.

Appendicitis from Over-indulgence in cathartics

Cathartics and laxatives and especially calomel are mentioned because they are so commonly used. They are all harmful. Many cases of appendicitis can be traced to the too frequent use of cathartics and laxatives during infancy.

Water

A drink of water between feedings will frequently help to relieve continued constipation.

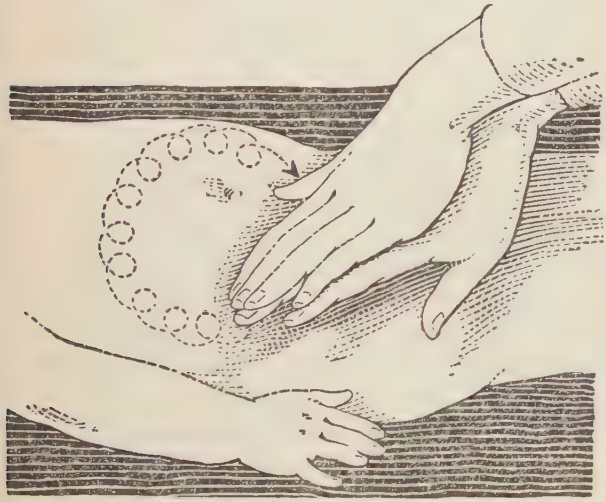
Fruit and Fruit Juices

In older children scraped pulp of raw apple or the pulp of a good mellow peach will aid in relieving constipation. Apple sauce or prune jelly may be given between meals. Orange-juice, grape-juice, pineapple-juice or apple cider will be found beneficial.

Massage

Kneading or stroking the abdomen over the bowels will stimulate the circulation if regularly performed. The fingers or hands of the mother or nurse should be oiled and by means of gentle stroking begin in the following manner: Have your hands warmed as well as oiled, begin at the right groin and lightly rub the fingers in a circular motion upward, until the umbilicus is reached; then rub across the umbilicus and down the left side to the groin. Begin again at the right groin and press a

little deeper each time until the baby becomes accustomed to it. This should be done every morning and evening for from five to ten minutes and can be continued for several weeks. In obstinate cases several months of treatment may be necessary.



CORRECT METHOD OF GIVING MASSAGE TO RELIEVE CONSTIPATION

Note the Position of the Right Hand of the Nurse

The baby should not be allowed to go more than twenty-four hours without a movement. Immediate relief can be given by an injection into the bowel through the rectum of one-half pint of tepid or lukewarm castile-soap water,

to which one tablespoonful of glycerin has been added.

Suppositories

Sometimes a very little stimulant to the rectum is all that is needed. A suppository usually acts quickly. The best for the baby are those made of glycerin or gluten. They are small and conical in shape and resemble the old-fashioned "soap stick." One of these suppositories should be dipped into vaseline or olive-oil and genty inserted into the baby's rectum and held there until the movement pushes it out. These suppositories may be used daily for several weeks, if required.

Drugs

No mother or nurse should give the baby any drugs for his bowel movement without the supervision of a physician. They should try any or all the remedies here suggested before giving the baby any drugs. Many cases of chronic catarrh of the bowels have occurred through the constant use of cathartics.

CORRECT POSITION OF A BABY WHEN GIVING AN INJECTION TO AID THE MOVEMENT OF THE BOWELS

CHAPTER XVIII

RICKETS—SCURVY—JAUNDICE

RICKETS

THE last few years have witnessed enormous progress in the study of the origin of rickets. It was formerly believed that rickets was caused by improper nutrition, but recent study has demonstrated conclusively that even tho the food is normal in quantity and quality, its assimilability and its metabolism depend on digestion aided by such stimulants as fresh air and sunlight. Rickets can be developed in rats deprived of sunlight, and they can be cured by prolonged exposure to sunlight. We can also cure rickets by treatment of the child with the ultra-violet rays and the mercury-vapor lamp, commonly known as the Alpine or the quartz lamp. In addition to the absence of sunlight, the absence of vitamin from the food is an important factor; so, for example, when infants are deprived of fresh milk and do not receive fresh vegetables containing vitamins, rickets will result. Rickets can be cured by giving

Caused by the Absence of Sunlight and Vitamins

cod-liver oil* in some form. The yolk of a raw egg and spinach should be given.

The bones, instead of being hard and firm, are soft and spongy, and sometimes very thin. The muscles, instead of being hard and firm, are soft and flabby. There is a general backwardness of development. It is strange that the mental development is sometimes advanced in rickety children. Rickety children are backward in teething, and when the teeth do appear, they decay very rapidly. The children are backward in walking and backward in talking and the soft-spot (fontanel) on the top of the head remains open months longer than it should. Owing to the soft bones which yield on walking, the child becomes bow-legged. The ends of the bones are enlarged, and the ribs are beaded.

X-Ray

The use of the *X*-ray has enabled us to see when the first symptoms of rickets develop. We were formerly able to judge only by the enlarged ends of bones, but to-day, by taking a picture we can easily see an absence of the lime deposit so necessary for the growth of bone. More important than taking the first picture

*At the Infantorium we have been using a cod-liver oil concentrate which has been developed in the research laboratory of the H. A. Metz Company. This concentrate can be given in tablet form, each 1-grain tablet containing the equivalent of one-half teaspoonful of pure cod-liver oil. Preliminary report has been presented to the Society for Experimental Biology and Medicine, 1924. XXI, pp. 461-462.

for the detection of rickets is the simplicity with which we can follow the treatment of rickets by taking weekly pictures. At the Infantorium* we have an elaborate *X*-ray apparatus with which we can follow all cases of rickets from the time of its diagnosis until its cure is effected, which usually takes place in several weeks or months when proper treatment, as previously outlined, has been given.

These children usually suffer from constipation and have a distended abdomen. They are restless at night and peevish by day. They perspire freely, especially while feeding. The back of the head is usually bald from rubbing the head back and forth on the pillow. If a breast-fed baby shows signs of rickets the breast-milk must be examined at once by a chemist in order to determine the quantity of fat, sugar, and protein that it contains. When nursing is prolonged and the mother menstruates regularly, rickets may develop. As a rule babies fed on condensed milk or those receiving insufficient fat or cream develop rickets. Fresh vegetables contain earthy salts and vitamins. We also have the vitamins in the yolk of a fresh egg. When the baby is kept indoors and over-bundled with clothing, it soon loses its appetite and if this continues for weeks and months the baby will become

*Located in the Heckscher Foundation of New York City.

undernourished, and as a result rickets in some form will be shown. Fresh cows' milk, warmed, not boiled, should be given. Fruit-juices, such as orange-, lemon-, pineapple- and grape-juice, and raw, scraped apple-pulp should be given. Butter, yolk of raw egg, with sugar, vegetables, cereals, and the dairy products such as cream cheese should form the bulk of the diet. Raw tomatoes and tomato-juice are other valuable aids in the prevention and cure of rickets. When severe constipation is encountered, several teaspoonfuls of sweet-oil or honey may be given daily. *X*-ray has taught us that cod-liver oil will cure rickets in early infancy. It is better to begin the use of it very early. One of the earliest symptoms of rickets is constipation, and 15 drops given to an infant three months old, three times a day will frequently prevent weak bones. Cod-liver oil should be given in doses of one teaspoonful three times a day to a child one year old. One grain of calcium phosphate in milk three times a day, will strengthen the bones. Children suffering with rickets require fresh air; they should sleep in well-ventilated rooms. While out of doors, they should be placed in the sun. A sun-bath is very important. The daily morning bath should be of lukewarm water to which one pound of sea salt is added. After the bath the child should

be briskly rubbed with a coarse turkish towel. No case of rickets should be neglected, or deformities will remain throughout life.

SCURVY

Detection of Scurvy by X-Ray

Scurvy is the result of improper feeding. Occasionally infants will suddenly stop walking and appear to be paralyzed, or they will have inflamed joints and appear to have inflammatory rheumatism. The gums may be inflamed. The bones will be spongy and the muscles flabby. The joints will swell and resemble rheumatism. The child will be covered with bluish-black spots as tho it were bruised. New spots will appear when the child is roughly handled. The gums have a deep purple color, are swollen and look spongy. They frequently bleed. Nosebleed or blood in the urine and stools accompanies this condition. The child appears pale and has no appetite. Great progress has been made in this disease by studying the bones with the aid of the *X*-ray.

If the child has been fed with a patent food, its food must be changed at once. Raw cow's milk must be given and all forms of steaming and sterilizing must be stopped. Recent research has demonstrated the value of tomato-juice and the use of boiled tomatoes as an anti-scorbutic. Orange-juice, grape-juice and

raw steak-juice must be added to the diet. Likewise baked white potato, barley, unpolished rice, fresh stewed vegetables such as turnips, carrots, whole peas (mashed, including the outer shells), spinach, beet greens, and lettuce. This is generally all the treatment necessary.

The prevention of scurvy and rickets depends on the dietary and the general hygiene routine. Young infants should be given orange-juice from birth through childhood. Orange-juice may be given where the bowels are loose or constipated. Likewise strained canned tomato-juice. A newly-born infant or a premature infant may be given from five to thirty drops daily. This can be increased until the infant receives two teaspoons or more after it is one month old. A pinch of bicarbonate of soda can be added to the orange-juice if it is sour, but the soda must be added *immediately* before feeding the orange-juice, not otherwise. When apple sauce or prune-juice is ordered, they should be given in addition to orange-juice or tomato-juice: never instead of. The vitamin contained in orange-juice or tomatoes is very necessary for the growth and development of the infant.

JAUNDICE

Newly-born

About the third day after birth, jaundice frequently appears in the newly-born. Most of these cases get well without any treatment whatsoever. A teaspoonful of aromatic sirup of rhubarb given once a day is helpful. In other cases a fiftieth of a grain of calomel will stimulate the action of the liver and eliminate bile. Unless some specific or hereditary disease, such as syphilis, is at the bottom of the jaundice, such infants recover quickly. If, on the other hand, jaundice persists and continues for one week or longer, then it is safer to consult a physician and see if the specific cause can be found and remedied. In older children the whites of the eyes appear yellowish, the urine is a deep brownish color and the stool is white or clay-colored. Such infants are languid and want to sleep. They appear toxic. If it is a simple catarrh of the bile-ducts caused by an overloaded stomach, then a few doses of epsom salts will relieve the condition. My advice always is not to experiment with a case of jaundice, for some of these cases may be due to a toxin in the circulation of the blood, resulting in jaundice.

PART III

MISCELLANEOUS DISEASES AND EMERGENCIES

CHAPTER I

FEVER AND TEMPERATURE

How to Take Temperature

THE normal temperature of a baby ranges between 98½ and 99½° F. If the baby has a temperature of 99 to 100° F. he should not be considered feverish. A temperature of 101 to 102° F. usually means a mild ailment. A temperature of 103, 104 or 105° F. means a severe febrile condition. Children are very sensitive and hence respond very quickly to conditions that give rise to fever. For instance, an overloaded stomach or a stagnant bit of fermenting milk-curd in the intestine may give rise to autointoxication resulting in fever as high as 105° F. and may cause convulsions.

Use a clinical thermometer. Shake the thermometer so that the column of mercury drops below 95°. Apply vaseline or oil to the end containing the mercury. Place the infant on the left side and insert the thermometer one inch into the rectum. Let it remain two to three minutes. The end of the column of mercury indicates the degree of temperature. The thermometer should be washed with soap and

cold water. The mercury remains registered in the tube until it is again shaken down.

Sudden Fever

If a child is well in the morning and suddenly develops a temperature of 103, 104, or 105° F., a sudden disturbance of the stomach or bowels is usually indicated. As a rule sudden fever is not dangerous, but responds readily to treatment.

Slow Fever

When fever comes on gradually, and increases ½ to 1 degree every day for a number of days, it is generally a bad sign. This form of temperature is met with in typhoid fever, and in meningitis.

It is important to remember that fever is absent in many diseased conditions. For example, brain fever and even scarlet fever and pneumonia may sometimes be present and still the temperature of the body be normal during the whole course of the disease.

What to Do for Fever

A teaspoonful of castor-oil is always a safe remedy no matter what brought on the fever. A teaspoonful of aromatic sirup of rhubarb may be given every hour for three doses. One of the most rapid methods of reducing fever is by washing the bowel with a pint of soap-water by means of a fountain or bag syringe. If the mother or nurse is skilful, the injection may be given high up in the bowel, with the aid of a small rubber catheter. Fifteen drops of sweet spirits of niter in a teaspoonful of

water may be given. This may be repeated every hour until three or four doses have been given. As niter acts on the kidneys it tends to eliminate fever and poisonous products through the kidneys by increasing the flow of urine.

Sponging the Body

If fever persists, then a sponge bath, consisting of one part of alcohol and five parts of cold water, should be given. The body should be sponged every half-hour until the physician arrives.

Rash

If an eruption is found on the body, a physician should be consulted before any sponging or cooling is begun.

Feeding During Fever

If the child is still on a milk diet, we should give a weaker food by taking away half the quantity of milk and adding the same amount of water. In some fevers even weak milk will not be tolerated and nothing but whey or thin soups will be retained. Evaporated milk* diluted with water may be tried.

Weak tea to which evaporated or condensed milk is added may be given for thirst.

Older children who have been on a diet of solid food should receive only liquids during the fever. Plenty of water should be given.

* Read page 118.

CHAPTER II

GENERAL RULES FOR CONTAGIOUS DISEASES AND FEVERS—ISOLATION

PUT the child to bed. Give a teaspoon of castor-oil or aromatic sirup of rhubarb.

One hour later give an infant 15 drops of sweet spirits of niter, and an older child 30 drops.

If twitching of the muscles is noticed and the child has had convulsions before, then give a strong mustard foot-bath for two or three minutes, and apply cold, wet cloths to the forehead, changing them every five minutes,

If twitching continues one-half hour after the foot-bath, then give an injection into the rectum of one pint of soap water.

For thirst give one or several tablespoonfuls of citrate of magnesia or orange-juice.

Do not give pure milk in fever, but dilute the food one-half. Thin soups, lemonade, and orangeade may also be given.

Do not bathe the child if an eruption is

seen on the skin unless the physician especially orders it.

Wrap the patient in a blanket and take him out of the sick-room into an adjoining room twice a day to permit thorough ventilation of the sick-room.

The Spread of Disease

The spread of most diseases is caused through ignorance or carelessness. So-called colds, such as running nose, sore throat, and bronchitis, are easily communicated to children and may be serious for the baby. Do not sneeze or cough in the baby's face. A mother or nurse should protect the baby from catching her own cold by tying a handkerchief or piece of cheese-cloth over her nose and mouth when nursing or caring for the baby. She should not kiss the baby, neither should she use her own handkerchief for the baby. The baby should never be taken to the room of a sick person, until the true nature of the illness is known. If the disease is contagious, the separation must be kept up. The patient must be isolated. This isolation consists in placing the patient in a room by himself, and giving him separate dishes, washcloths, towels, etc. Only one person should care for him, and the clothing of this person should be protected by a long gown when in the patient's room. After handling the patient the hands must be carefully washed in warm water and soap.

Isolation

CHAPTER III

MEASLES, SCARLET FEVER, CHICKEN-POX, DIPHTHERIA, CROUP, AND INFANTILE PARALYSIS

MEASLES

IN measles, the first thing usually noticed by the mother is that the baby appears to have taken cold. He will sneeze, have a catarrh in the head, and cough. The eyes are congested or reddened, the appetite poor and there is always fever. Three or four days later a rose-colored rash will appear on the face and neck, and later spread to the chest, arms, and legs.

The first symptoms of measles are seen in the throat and on the inside of the cheek. There are faint bluish-white specks which resemble a drop of milk. These can be seen with a strong light or sunlight and appear one or two days before the skin eruption of measles appears.

At the first symptoms the baby should be put to bed in a darkened room, or with his back to the light on account of the inflammation of the eyes. Plenty of fresh air should be allowed to enter, and the temperature of

the room kept at about 70° F. All other children should be kept from the room or house if possible, as nine out of every ten, if exposed, will take this disease. If children remain well fourteen days after exposure, then they will probably escape. As a rule, the disease appears between seven and fourteen days after an exposure. Bathing should be stopped. No child should be permitted out of bed, no matter how good he feels until the rash has entirely disappeared. This may in some cases require a child to be in bed five to seven days. Complications can be avoided by this precaution. It is the careless mother or nurse who, disregarding a mild bronchitis, will expose a sick child in order to harden it and later find that the child has contracted a fatal pneumonia. Continued fever after the measles' rash has disappeared means the development of some complication, usually ear abscess or pus in the pleural cavity. Continued cough after measles should not be disregarded. Tuberculosis and chronic bronchitis very frequently follow measles.

Complications

Measles is regarded by the laity as a trifling disease, but a word of warning should be given to the mother who believes that nature will take its course. Deafness frequently follows a catarrh of the ear when neglected. Vaginal discharges are very common after

measles. Sore eyes will continue for months, and sometimes for years if neglected. It is a good plan to have a physician supervise every case of measles if for no other purpose than to prevent complications.

GERMAN MEASLES

This disease resembles ordinary measles, altho it is a much milder disease and does not begin with sneezing and coughing. Sometimes there is a slight fever, but more often the first symptom noticed is the rash. The pale red rash usually appears all over the body. It varies in size from a pin-head to a small pea. It disappears in three or four days. The characteristic feature of this disease is a series of enlarged glands at the back of the neck which remain swollen from three to seven days and gradually disappear. The child should be kept in bed and put on a light diet. This is all the treatment that is necessary. The patient should be isolated. If a child has been exposed to this disease he will usually show signs of it at any time from the fourth to the twentieth day after exposure.

SCARLET FEVER

The Rash

The early symptoms of scarlet fever are sore throat, headache, high fever, and vomiting which may occur in spite of a most careful

diet. On examining the throat we usually find an intense redness, and in addition thereto, grayish or yellowish spots, the size of a large pea, on each side of the throat. Under the jaw the glands will usually be very much enlarged. There is a foul odor to the breath. The skin is dry. There is intense thirst. The child wants to sleep; it is toxic. The nostrils are stuffed. There is difficulty and snoring while breathing. Convulsions sometimes occur. From twenty-four to thirty-six hours after the first symptoms are noticed a rash of a deep red or bluish-red color usually appears, first on the neck and chest, and later covering the body. It is a slightly elevated pin-point flush, so diffuse that the whole body has a very red appearance. This rash usually remains five or six days. The skin then begins to peel off or desquamate; this peeling takes from two to four weeks. The strictest isolation must be observed.

Fever and Pulse

The temperature usually begins with 101° F. and rises to 103, 104, or 105° F. As a rule physicians welcome a high fever during the course of an intense scarlet fever. The outcome of a case with high fever is usually far better than when a low temperature of 100° F. exists. When we have a temperature of 99° and 100° F. in a severe scarlet fever and the pulse running as high as 150

or higher, or the reverse, when the pulse has dropped from 90 to 80 or lower, then the condition is very grave.

How Spread

The modern view of the contagiousness of scarlet fever is that the disease is conveyed by contact only. Discharges from the ear, nose, throat, and vagina contain the active poison which transmits the disease. The skin peeling or desquamation is not regarded as a means of carrying the disease. The New York Health Department therefore does not demand disinfection after the peeling is over.

When a rash resembling scarlet fever occurs, the glands in the neck as well as those in the groin and other parts of the body, become enlarged and remain so for several weeks. Glandular swelling does not accompany a so-called stomach rash caused by oatmeal, crab-meat, or strawberries, or by ivy poisoning.

To guard against scarlet fever the Dick test has recently been advocated. Children giving a positive reaction can be protected by serum subcutaneously injected.

This disease is too treacherous to be dealt with by any family without the advice of a physician. A great danger is the possibility of heart and kidney affections. Dropsy frequently follows in a neglected case of mild scarlet fever. Many cases of mastoid infection could have been avoided if proper treat-

ment of a simple running ear had been instituted earlier in the disease.

Vaginitis is a catarrhal discharge that usually follows measles or scarlet fever or diphtheria. It is due to an infection by a disease germ, and should be carefully supervised. A sterile gauze pad should be worn and changed several times a day, and the parts thoroughly cleansed with a solution of one teaspoonful of powdered alum to one pint of lukewarm water. When discharges exist, infants have a tendency to scratch, and the pus can be carried by the fingers to the eyes and cause serious trouble. If vaginitis continues, it may require local treatments with astringents, such as nitrate of silver or argyrol. Such cases last longer if the body is subnormal, hence iron or a tonic dose of cod-liver oil or arsenic may be necessary to restore normal conditions. Vaginitis

CHICKEN-POX

Chicken-pox is a contagious disease. If the baby has been exposed, it will probably have an eruption between the fourth and fourteenth days after exposure. Usually the first symptom noticed is a slight fever and a series of red blotches scattered over the body. These red blotches are at first small, and gradually grow larger and resemble water-blisters. In a few days they dry up and the crust falls off.

The eruption appears in successive crops; as one crop disappears, another crop appears. The disease frequently attacks very young infants. It has nothing to do with vaccination. There is no danger in this disease if the child is kept in bed, the bowels cleansed, and no solid food is given. It may be communicated to healthy children as late as sixteen days after the first symptoms appear. This disease is so mild that a liquid diet and care of the bowels are all the treatment necessary.

DIPHTHERIA

A study of over a half-million of children between 1 and 3 years of age show that about 90% are susceptible to diphtheria. This is proven by giving them the Schick test. The Health Department of New York has therefore decided that since 90% of children are susceptible to diphtheria, they should be protected by giving them three separate injections of toxin-antitoxin one week apart without previous testing for their susceptibility. When this is done, then one can be sure that the child will not take diphtheria if exposed to it. As a rule, such children which have been protected by the toxin-antitoxin method should be tested to see if this protection remains permanent. The Schick test therefore should be made either

Protection

once in 6 months or once a year *after* the protective injections have been given.

When the child develops diphtheria, it first appears as yellowish, or grayish-yellow, spots or patches in the throat. These spots are seen on one or both tonsils or on the pharynx. There is usually fever, the temperature ranging between 101 and 102° F. In simple tonsillitis the temperature is much higher, reaching 103 and 104° F. **Symptoms**

The glands of the neck, below the jaw, are swollen and there is pain on swallowing, which will prevent the child from taking food.

When an infant refuses its bottle our first duty is to inspect the throat. If we find on examination that the back of the throat, or the sides of the throat contain yellowish or whitish spots, then no time should be lost and a physician should be called. A mild diphtheria may resemble tonsillitis and, if neglected, it will spread and may result fatally. If, on the other hand, the case is tonsillitis, one should try to avoid complications. Many cases of simple tonsillitis can transmit infection through the eustachian tube, and set up an inflammatory condition of the middle ear which may give rise to a running ear. An ordinary sore throat should therefore be vigorously treated, otherwise we shall have the beginning of chronic (swollen) tonsils and

thus have a focus for later infections during childhood. Until the physician arrives, give one or two teaspoons of milk of magnesia. This has a mild laxative effect and will reduce fever. No solid food should be given, only milk, gruels, and broths. For thirst, ice-cream and water-ices should be given. The patient must be strictly isolated. If other children are exposed they are likely to get the disease within one week after exposure. When children have been exposed, an immunizing (prevention) dose of diphtheria anti-toxin should be given.

CROUP

False Croup

There are two kinds of croup, catarrhal or false croup and diphtheritic or true croup. Catarrhal or false croup is the kind that comes on suddenly in the night in an apparently healthy child. It is the result of a simple filling up with mucus. The baby may have had a cold or been exposed, but more often no special cause can be found for this sudden attack. The baby may wake up during the night with a hoarse barking or crowing cough, and seem to breathe with difficulty.

Croup Kettle

One of the best methods for relieving this cough is to have a croup-kettle or a teakettle with a long spout so placed that steam coming from the kettle will be inhaled by the baby.

Ten or fifteen drops of spirits of turpentine may be added to the steaming water. This steam should be kept up for several hours so that the air in the room becomes saturated. If the attack is very severe a teaspoonful of sirup of ipecac may be given. If vomiting does not result, then give another dose of ipecac in twenty minutes. This form of croup comes on suddenly and disappears suddenly if the emetic is given. There is no danger to a child's life even tho such an attack comes on after exposure to cold.

True Croup

Croup should always be looked upon as a forerunner of measles. While croup may be associated with diphtheria, it is well to remember that it frequently precedes measles.

When a croupous cough is accompanied by yellowish or whitish spots in the throat, then it signifies a diphtheritic throat, and the case must be treated as tho it were diphtheria. A croupous cough means that the vocal chords or the larynx is swollen and inflamed. No time should be lost in calling a physician as some of these cases, if neglected, die of suffocation.

INFANTILE PARALYSIS

This is an infectious disease. How it is spread is not definitely known, but it may be taken directly from a sick person, or through

a third person who has been with the patient. The germ or virus enters the back of the nose or throat and undoubtedly permeates the ganglion located at the base of the brain. During an epidemic the fingers must be frequently washed, especially before eating, to avoid contamination. The earliest symptoms are fever (rarely vomiting) and twitching and irritability followed by paralysis of a part of the body usually the extremities. Rarely does paralysis appear after the fifth day. Older children will complain of pains in the head and neck and eyes. They will have an unsteady gait and walk as tho drunk. During an epidemic, we frequently have patients who, altho having the above-mentioned symptoms, will not have paralysis. These cases are called the "abortive types" of the disease. Such children, after recovering, are a great menace to the community, for they may harbor the infection in their throats or noses. They are called "carriers." When infantile paralysis is suspected, a spinal puncture will frequently show an increased number of cells, which is diagnostic of this disease. An early intraspinal injection of convalescent serum taken from a patient who has had this disease is the best known method of treatment. When paralysis has taken place, then the intraspinal treatment is not advantageous.

Symptoms

Serum Injection

CHAPTER IV

CATARRHAL AND SENSITIVE CHILDREN

INFECTIOUS DISEASES

Prevention of Colds

WHEN children take cold and have a running nose, the back of the nose should be examined for the presence of adenoids. As a rule, adenoid vegetation will be responsible for recurring colds during infancy. The adenoids should be removed. If not they will swell so that the infant will snore at night and have difficulty with its breathing. Such infants are more susceptible to diseases resulting from inhalation of tubercular germs, scarlet fever and similar infectious diseases. They usually have frequent attacks of tonsillitis. At times, overheating the body with too much clothing or living in overheated apartments will swell and dry the mucous lining of the nose and throat, and so invite catarrhal diseases. In steam-heated apartments a kettle of steaming water should be in the room to moisten the air. When possible, children so affected should have their body very well clad and sleep with the window wide open. This applies in winter as well as in summer. If the feet and body are warm, then the tempera-

ture of the air breathed is of secondary importance. The colder the air the more refreshing and deeper will be the sleep.

When children have recurring bronchitis or have had previous pneumonia, they should be hardened. This applies as well to city life as it does to country life. The large number of cases of tuberculosis which in the early stages travel back and forth, and many unknown cases, are carriers of disease germs which spread tuberculosis all over the country. When the body is hardened and in good physical condition then the seed of tuberculosis rarely takes root. The city mother can take her infant to the roof of a house and protect it from unnecessary drafts and thus keep it away from street dust.

COLD IN THE HEAD

Head-colds are very common. They are caused by catarrh germs usually inhaled with the street dust. When grippe is prevalent the influenza germ may give rise to a cold in the head and cause fever, peevishness, and swelling of the nostrils. The infant will be hindered in taking its bottle or nursing while suffering from a running nose. Sneezing, sniffling, and a running nose are the symptoms of a head-cold. If fever accompanies the cold, one grain of phenacetin in a teaspoonful of

water repeated every four hours will sometimes relieve the catarrh. A running nose is frequently a symptom of adenoids and one of the earliest symptoms of measles. Relief can be afforded by spraying the nose with warm water containing a pinch of bicarbonate of soda, morning and evening. If the nostrils are plugged with mucus one or two drops of alboline or sweet-oil should be dropped into the nostrils from a spoon or a medicine dropper. Older children can be allowed to sniff salt water into the nostrils.

A weak solution of boric acid sprayed into the nostrils several times a day will relieve the infant. To clear the obstructed nostril, add one drop of camphor-oil to two drops of warmed olive-oil and put one drop into each nostril. If these mild remedies do not relieve the running nose it is safer to consult a physician. Now and then what appears to be a simple head-cold may be a mild form of diphtheria of the nostrils. It is usually found in infants weakened by malnutrition and especially in those having rickets.

ADENOIDS

Adenoids consist of small masses of reddened granulations resembling proud flesh. They occur in the back of the nose and on the pharynx. They can seldom be seen by look-

ing into the throat, but can be felt by introducing the finger into the throat. If the child snores at night, is restless, and can not sleep, if it can not breathe through its nose and the mouth is used for breathing, then adenoids are very likely present. When catarrh recurs frequently, adenoids are usually present. Bed-wetting is frequently noted in children suffering with adenoids. These children are peevish, sensitive, and cry; they are very nervous and must be coaxed to eat. They gag and vomit easily. They are usually very thin and frail and backward in development. They have a foul breath.

Adenoids if untreated will obstruct the Eustachian tube and frequently cause deafness. Restlessness and insomnia are frequently caused by adenoids. Children will lose weight and appear very pale if deprived of sleep. When adenoids are removed the patient gains in weight and strength.

Deafness

Deafness is frequently caused by adenoid vegetation in the throat. Deafness in children can frequently be cured by the simple removal of such growth. Catarrh, affecting the nose and throat, frequently closes the Eustachian tubes, resulting in deafness. The treatment is simple but can not be carried out by the average mother or nurse.

TONSILLITIS

When a child refuses to eat and has fever, the throat should be examined. If the tonsils are inflamed they will be either reddened or coated with whitish pin-point spots. The temperature may reach as high as 102-104° F. Until a physician can prescribe, citrate of magnesia may be given in wineglassful doses; it will relieve the thirst and has a laxative effect. Cold cloths should be wrapped around the neck and small pieces of cracked ice or ice-cream may be given. Several drops of a 50 per cent. solution of collene can be dropped into each nostril at bedtime. To shrink a swollen mucus membrane of the nostril, and to give relief, two drops of suprarenal solution* may be tried.

The removal of diseased tonsils is so necessary that it hardly needs a word of explanation. Chronic swollen tonsils usually have small yellowish points which are plugs of pus, and these latter give off a poison which, if neglected, will cause rheumatism of the joints and also heart-disease. Many a case of fatal heart-disease is due to the neglect of the removal of diseased tonsils. Thin, puny, emaciated children can be developed by this simple operation into strong individuals in the

*Made by the H. A. Metz Laboratory.

course of a few years. The fact that the Board of Health and school authorities in most, if not all, of the large cities—especially in New York—forbid the attendance of children with diseased tonsils, is sufficient to show how the health authorities recognize the danger lurking in diseased or swollen tonsils.

RHEUMATISM

Elsewhere in this book I have mentioned that enlarged and diseased tonsils are frequently the cause of rheumatism. In some text-books a disease called rheumatic tonsillitis is mentioned, because inflamed tonsils are usually the forerunner of rheumatism. One should never minimize a child's pains in the joints or pains in the feet, but should always see if enlarged and diseased tonsils cause this trouble. If so, the tonsils should be removed. When children complain of pain in their joints, such pain must not always be attributed to growing—it may be rheumatism. Many cases of rheumatism with fatal heart-disease have been traced back to supposed "growing pain." Very active exercise indulged in by children with feeble muscles and joints is frequently followed by pain mistaken for "growing pains." There is always a cause for joint pain, and if such pain continues it is better to consult a physician.

CORRECT METHOD OF HOLDING A BABY FOR THE EXAMINATION OF ITS MOUTH AND THROAT

Rheumatism is usually accompanied by fever. A child will refuse to walk. The joints are swollen, and the child will cry on moving the limb. A local application of oil of wintergreen applied over every tender joint will give relief. Internally one should give a teaspoonful of bicarbonate of soda with water several times a day, the bowels must be kept open, and meat or eggs should be excluded from the diet. The diet should consist of milk, fruit, vegetables, and water.

WHOOPING-COUGH

Infants while nursing rarely contract whooping-cough. Immune substances in breast-milk protect the infant. If an infant over one year old has been exposed to this cough we can protect it by an injection of vaccine. If we delay in notifying the physician then the vaccine is useless.

In other words, if the infant has reached the spasmodic stage of the whooping-cough, then the vaccine will do no good. In the early stage whooping-cough resembles bronchitis. The cough is an irritable, frequently recurring cough, dry, and without any mucus expectoration. In bronchitis we have a loose cough with a large amount of discharge, and usually some fever.

In the early stages of whooping-cough there

is no fever. If a child has been exposed to whooping-cough, then the earlier the vaccine injection is given the better the protection will be. There is always the danger of a rupture in the groin or in the umbilicus caused by the strain of the cough on the abdominal muscles. To avoid the rupture, a support should be given to the abdomen. The simplest form of support is an abdominal binder which can be worn all day long and removed at night. If the cough is very severe at night a similar bandage can be applied and worn during the night.

Use of X-Ray

The best known treatment of the spasms consists in giving X-Ray to the throat. As a rule one or at most two exposures of two minutes is sufficient to control the spasms. This should only be given by a physician.

The first symptoms of whooping-cough are those of an ordinary cold with a cough. This lasts about ten days, when the cough gets stronger until a pronounced spasm appears. These spasms consist of a number of short, quick coughs, then a long-drawn inspiration known as "the whoop." During these coughing spasms the baby will get very red, sometimes bluish-red in the face, and frequently the spasms ends with a vomit. It will be noticed that the cough is worse indoors and is least troublesome out of doors. The spasms

are strongest at night. This is usually so because the windows are tightly shut. Fresh air night and day are very necessary for a cure.

Fresh Air

In the country a child suffering with whooping-cough or any chronic cough, should be placed on a sleeping porch. It should sleep out of doors and remain in the open air constantly. To have a child in the air by day, and in a stuffy room at night, defeats the object of our treatment. Fresh air will stop a cough more quickly than any other remedy. Windows should not be closed even if it is raining, but the child can be protected with covers and so kept warm.

Feeding

The danger in whooping-cough consists of exhaustion following lack of food as a result of the constant vomiting. If a breast-fed baby suffers with whooping-cough, the feeding should be more frequent and less in quantity. The same rule applies to a bottle-fed baby. For example: If the baby has been receiving a bottle containing six ounces every three hours, it should, while the vomiting lasts, receive a bottle containing four ounces every two hours. If the swallowing of food provokes a coughing spasm and results in vomiting, then the food may be given, in some cases, every hour. By this method baby will have a chance to obtain a little nourishment

from its food before throwing up. Concentrated food, such as yolk of egg, white of egg, and steak-juice, made by expressing the juice from broiled steak, may be given. Older children may receive custard, junket, cereal puddings, and raw-scraped steak mixed with the yolk of an egg. Cod-liver oil in teaspoonful doses given three or four times a day will nourish the body. Medication does not, as a rule, help in this disease. Anti-spasmodic drugs, such as bromid of sodium or phenacetin, have a very soothing effect on the nervous system and insure rest at night, which is very necessary in infancy. A tight binder or adhesive-plaster support for the chest will aid in relieving the force of the spasm. Whooping-cough runs its course in about twelve weeks; plenty of fresh air night and day, or a change of air to the seashore or mountains, tends to shorten the disease. Whooping-cough is one of the most contagious diseases and if a well child is exposed, it is pretty sure to show symptoms within three weeks after exposure. From the violent coughing spells we occasionally have nose-bleeds and spitting of blood. The whites of the eyes may also be tinged with blood, caused by a hemorrhage under the eyeball. Convulsions may follow a severe spasm of whooping-cough. It is safer to have a physician give a soothing drug to

modify the force of the cough than to run the risk of the complications previously mentioned. A rupture, better known as a hernia, frequently follows severe spasms of coughing.

TUBERCULOSIS

When children lose weight, or their skin is flabby, even tho they do not cough, the glands of the neck, or in the groin or under the arm should be felt to see if they are enlarged. If the infant has been exposed to a patient suffering with tuberculosis, or if it has been allowed to romp on the floor, or on a rug, or in a room where a patient with tuberculosis lived, then certain precautions should be taken. A simple method of detecting tuberculosis is in use in most of the hospitals and institutions of the world. It is a scratch test with a sterilized needle on the skin by which we inject an infinitesimal dose of tuberculin. In 24 to 48 hours after inoculation, if a child is tubercular, a reaction can be seen on the skin, known as a positive Pirquet reaction. This is a very delicate test and is a positive guide as to the presence or absence of a tubercular condition. Tuberculosis frequently begins in infancy. Occasionally it follows a prolonged whooping-cough or bronchitis. It may also follow measles. Cough with fever,

lasting several months, should always be regarded with suspicion.

Tuberculous children are languid, they perspire easily at night, and lose in weight.

The germs may enter the body by two channels: first, by the stomach, through milk from a tuberculous cow; second, by the lungs, through the inhalation of dust containing the germs, or the germs may penetrate the glands of the neck and cause meningitis.

The baby should never be allowed to sit on the floor unless the floor is covered with a large floor-pad or blanket which is frequently washed. Dried expectoration can be carried on the shoes from the street, and so introduce the germs into the house.

The tendency to tuberculosis is often inherited in families with weak lungs. An outdoor life, or sleeping on a porch with southern exposure will harden the child and aid in restoring health. We must depend on fresh air and proper food; drugs are useless.

The use of cod-liver oil and foods containing vitamin, such as the yolk of a fresh egg added to milk, and concentrated vegetable juice and steak juice, will aid nutrition and will restore health. A change of air will always aid in assimilating food and restoring health.

MUMPS

In mumps the glands of the neck situated under the angle of the jaw become swollen. Sometimes both sides are affected. There is a loss of appetite, pain on opening the mouth, and sometimes a slight fever. This disease can spread; hence all children must be kept away from it. If a child has been exposed it may develop symptoms as late as two or three weeks. These cases get well very easily if a liquid diet is given, the bowels kept loose, and the swollen parts protected with cotton and oil silk.

SWOLLEN GLANDS

Swollen glands may occur on the sides of the neck or below the jaw, under the arms, or in the groins. These swellings may disappear of themselves, but when they remain for months we must suspect a constitutional disease, such as tuberculosis or scrofula, to be the origin of the trouble. When glands swell on either side of the neck, the throat, especially the tonsils, require examination. Swollen glands in the neck may be caused by diphtheria in the nostrils or throat, or by an abscess forming in the ear. Lice will sometimes cause swelling of the glands in the neck and back of the head. Swollen glands will sometimes appear in the armpits after vaccination.

A proper examination should be made by the physician to determine the cause of the glandular swellings. To determine whether swollen glands are tubercular, the Pirquet or skin test should be used to diagnose the presence or absence of tuberculosis.

DRUG ERUPTIONS

Many drugs given to infants, such as belladonna, atropine, antipyrene, codeine, phenacetin, and aspirin, have been known to cause papular eruptions. These are small reddened pimples which come during the administration of the drug and disappear when the drug is discontinued. Fever never accompanies such eruptions. If one is in doubt as to whether an eruption is to become measles or scarlet fever, take the temperature and if the same is normal, we can be sure that neither measles nor scarlet fever is developing.

CHAPTER V

SKIN DISEASES

ECZEMA

ECZEMA usually occurs as an inflammatory redness of the cheeks, forehead, and scalp. It may also appear on the arms and legs, or on the whole body. Young infants usually have an excoriation between the thighs. This may be an irritation due to a very acid urine or it may be caused by fermenting acids coming from the bowels. Neglect to keep an infant clean and to change its diaper soon after soiling, invites an eczematous eruption between its thighs. An excess of sugar or the feeding of cereals in large quantities is frequently the cause of eczema. At the beginning of rickets, infants will frequently have eczema on various parts of the body. The treatment usually consists in bathing the body in oatmeal water by taking several ounces of oatmeal, tying it in a bag of cheese-cloth and scalding it in boiling water; when the water is tepid, give the baby an oatmeal bath for at least ten to fifteen minutes. No soap should be used, but the body should be well rubbed with zinc ointment to which a

few drops of oil of tar has been added. As there is a tendency to relapse, such conditions should be given regular treatment, and a physician should invariably supervise the diet and the skin-disease. To relieve itching in eczema, all sugar and cereals should be excluded from the dietary, and, if possible, milk soured with the Bulgarian culture or the acidophilus culture will prove beneficial.

PRICKLY HEAT

In summer during the extreme heat a finely mottled rash is sometimes found on the skin of children. This condition may also occur in winter if the child is too warmly dressed. To relieve the rash, the flannels must be laid aside and only muslin or linen worn next to the skin. The body should be powdered with talcum or wheat flour after being washed with pure cold water. If itching accompanies this rash, a bran bath should be given. Sponging the skin with equal parts of vinegar and water or spirits of camphor or wich-hazel is very soothing, and may be repeated three or four times a day.

CHAFING

Very tight underclothing or very warm clothing produces perspiration. If such perspiration is very acid, it may cause irritation

and by the friction of the clothing develop inflammation. When this continues the skin will appear highly inflamed and reddened, and at times develop crusts resembling eczema. When the buttocks or the genital tract is inflamed and reddened we will notice that the child moves its legs or an attempt to scratch is made by rubbing the thighs. If this condition persists for a number of days, then the skin between the thighs will develop crusts and we have an eczema. Neglect to change a wet diaper may cause chafing. If a baby is soiled from stool and not properly cleaned, chafing may occur.

Clean the chafed parts with sweet-oil and dust liberally with cornstarch. Do not use water. Zinc salve should cover the inflamed parts and if they do not improve within twenty-four hours consult a physician.

CHAPPED HANDS AND FACE

A tender skin when exposed to severe wind will sometimes crack and the skin appear very rough. This condition is very likely to occur if the skin is not properly dried before going out in the cold weather. At times a slight oozing of blood may take place. Apply melted cocoa-butter, cold-cream or zinc salve three or four times a day and stop bathing with water for at least one week.

SUNBURN

A highly inflamed and reddened skin frequently results from exposure to the sun's rays. Camphor ice, zinc salve or sweet cream from top milk applied several times a day will remove this inflammation.

HIVES

Round, red blotches, sometimes as large as a twenty-five cent piece, having a whitish center resembling a mosquito bite, may appear on the skin. They frequently follow a disordered stomach. These blotches come and go very quickly and require cooling with baking-soda moistened with cold water and made into a paste. As a rule a dose of castor-oil or a teaspoonful of rhubarb and soda mixture for a baby one year old may be repeated once every three hours until the bowels are thoroughly cleansed. For a baby six months old one-half the dose should be given. It is a good plan to stop all milk for at least one or two days, and give instead plenty of water and chicken broth. For an older child stop giving eggs or meat one or two days and give buttermilk instead. Vegetables or vegetable-juices and fruit-juices should be given.

BOILS

Boils are abscesses of the skin and usually occur on the head and neck. They are most frequently due to local infections. When these boils occur on the scalp the hair should be trimmed around the boil and an incision will be necessary to empty the pus. All boils require careful antiseptic dressings which should be applied by a trained nurse or a physician.

When boils recur on the scalp and neck and become very troublesome, then their recurrence can be prevented by having a vaccine made from the pus. Such autogenous vaccine, if made from a staphylococcus pus is usually specific in its results. I have seen many cases of furuncle caused by a staphylococcus that were cured after several injections of vaccine.

MOSQUITO BITES

If residing in a locality where mosquitoes abound, the child should be screened both night and day. The germ of malaria can be carried by a mosquito and an infant may be infected through its bite. Sprinkling the pillow and bedclothing with a teaspoonful of alcohol to which ten drops of oil of citronella has been added, has a tendency to keep mosquitoes away. To remove the heat from a

sting of an insect or mosquito, the parts should be bathed with spirits of camphor or pure alcohol.

RINGWORM

A ringworm produces a round, red mark about the size of a twenty-five cent piece, sometimes larger. It is most frequently found on the forehead or scalp; it may, however, attack any part of the body. It is caused by a fungus which can be conveyed from person to person. If it appears on the scalp the hair should be cut short and the affected part painted with tincture of iodin. The cap, towel, and everything coming in contact with the ringworm should be destroyed or it will convey the disease.

Ringworm can be cured by means of the *X*-ray in the hands of one competent to apply the proper dose. A physician should always be consulted when ringworm is suspected.

CHAPTER VI

ACCIDENTS AND EMERGENCIES

BURNS

MILD burns should be carefully treated. One should remember that when the skin is blistered an infection is liable to take place which may mean erysipelas or blood poisoning, and frequently ends fatally. Blisters should be opened with a needle that has been boiled in water. After the blisters are open and the water has been expressed by gentle pressure, then a fresh piece of oiled silk, perforated with small holes, should be applied over the blisters, and a bandage, or strips of gauze should be tied gently over the burned area. As a rule, if we exclude air from a wound, the parts heal quickly. If a physician can not be summoned, then a lotion consisting of equal parts of linseed-oil and limewater should be applied. A piece of sterilized gauze or clean linen or cheese-cloth saturated with the linseed-oil and limewater applied directly will remove the heat and sting from the burn. This should be reapplied three or four times a day.

BUMPS AND CUTS

If a child falls and has a bump or a bruise, an ice-bag or cotton saturated with lead-and-opium wash should be applied. In the absence of lead-and-opium wash wich-hazel may be applied. If the skin is torn and bleeds freely, the wound should be washed with a tablespoonful of peroxid added to half a tumbler of cold water. This will cleanse the wound. If gauze saturated with peroxid water is applied directly to a bleeding surface and a tight bandage applied over it, the bleeding will stop very quickly. No one should dress a wound without thoroughly scrubbing his finger-nails and hands. By introducing dirt from fingers or nails blood-poisoning can result.

Bleeding

If blood spurts from the wound, an artery has been cut and we should tie a handkerchief or a clean piece of linen over the wound until a physician can be summoned.

If the cut is very slight it may be washed in equal parts of peroxid and boiled water and tied with a clean piece of linen.

SPLINTERS

If a splinter enters the flesh it should be removed with the aid of a clean, sharp needle and the part bathed thoroughly with wich-hazel. If a needle-point is imbedded and is

difficult to dislodge, a physician should be consulted. Frequently needle-points become so deeply lodged that an *X*-ray examination must be made to locate them.

Foreign bodies should always be removed by a surgeon. There is little pain and no danger in using a local anesthetic, such as 4 per cent. or 6 per cent. novocain. By this means we can absolutely deaden sensation and make an incision to remove a foreign body.

BLEEDING

The laity frequently apply cobwebs or chopped straw or oakum over a bleeding surface. There is great danger of lockjaw from dust-laden cobwebs, and this is merely mentioned to condemn the practise. Such methods should never be used.

If the scalp bleeds, wash it with equal parts of peroxid and lukewarm water. Cut any hair away. Apply a thick piece of gauze and tie a bandage tightly. If a large scalp wound is seen, then call a physician, for a stitch may be necessary. Before touching any bleeding surface be sure to wash the hands, for the slightest particle of dirt may cause an infection. An infection frequently results in poisoning.

When bleeding comes from any part of the body apply styptic cotton to the bleeding sur-

face and bandage tightly. Powdered alum sprinkled on absorbent cotton is also useful to stop bleeding.

If the finger is cut or scratched and bleeds, wash it in clean, cold water and bandage tightly with a clean bandage.

Nosebleed

Nosebleed can be stopped by inserting into the bleeding nostril a small piece of absorbent cotton soaked in tincture of iron. Small pieces of ice held against the nose will frequently stop the bleeding.

Cat or Dog Bite

In case baby is bitten by a pet cat or dog, or, as sometimes happens, by a playmate, the parts should be washed with clean water, then apply tincture of iodin directly on the wound. If the bite is more than skin deep, send for the physician.

FOREIGN BODIES

If an infant has swallowed a whistle, a button, a pin or similar object, and shows signs of difficulty in breathing, the object swallowed has probably not passed far down, but has been caught in the throat. In rare instances difficulty when breathing may mean that a foreign substance has been inhaled and has entered the bronchial tube. Holding the baby with its head down and tapping it firmly on the back will sometimes dislodge the foreign body; if not, the mother should try to

reach it with her finger. If breathing becomes more labored and the lips turn blue give a teaspoon of sirup of ipecac to produce vomiting.

If, however, in spite of this treatment the breathing is still labored and there is a cough, showing an irritation, then a physician should be summoned who is conversant with a bronchoscope, and thus try to locate and dislodge the foreign bodies from the tubes or bronchi.

In the Stomach

If there is no difficulty with breathing we know the object has safely passed the throat and reached the stomach. Then do not give anything to make it vomit; nor give a cathartic which may do harm by hurrying the object too rapidly through the intestine. Give the baby thickened pap, and potato or bread soaked in milk. These foods will help form a soft coating and bring it through the stomach and intestines. The stools should be examined daily until the object is passed. This usually requires from two to four days, occasionally a week or ten days. If, however, a child shows any symptoms of pain or distress, it should immediately be taken to a physician for an *X*-ray examination.

In the Eye

If a foreign body gets in the eye, hold the lids apart and with the aid of a small piece of linen, try to remove it. An eyestone or flaxseed placed in the corner of the eye will

sometimes remove the foreign substance. If the foreign body is not easily dislodged, do not tamper with the eye, but call in a physician.

In the Nose

If a very young infant has a foreign body in the nose, tickle the nostril by inserting a soft, dry feather. This will make it sneeze. In an older child the free nostril may be held shut and the child instructed to blow through the obstructed nostril.

No one but a physician or a trained nurse should attempt to syringe a nose, for there is danger of the liquid flowing through the nostril into the middle ear and causing an abscess.

In the Ear

An insect can usually be dislodged from the ear by pouring one or more drops of sweet-oil into the ear. A bead or similar substance can be removed by syringing the ear with lukewarm water. Do not use any hairpins or button-hooks to dislodge foreign bodies. As a rule, more harm can be done by meddling with a deep-seated substance than by leaving the ear alone until a physician can be consulted.

POISONING

The general treatment for poisoning is to rid the stomach as quickly as possible of the poison taken. This is done by emetics, such as a teaspoonful of mustard or alum in a

glass of lukewarm water, or lukewarm salt water, or a teaspoonful of ipecac, and then warm water, repeated every five minutes until vomiting has been produced. Then one or two teaspoonfuls of castor-oil should be given. If an acid such as carbolic or oxalic has been swallowed, then olive-oil should be forced down the child's throat. Bicarbonate of soda and water may be given if any acid has been swallowed. Warm or cold milk may be given as an antidote to any poison, until the physician arrives and uses the stomach-pump to empty the stomach of its poisonous contents. If an overdose of soothing sirup or too much paregoric has been given, keep the baby awake by almost any means, such as slapping with a towel wet in cold water; or if the child is old enough, walk it constantly up and down, or give a mustard foot-bath, until a doctor can get there. Give several drops of whisky in water, and repeat every ten minutes. If the stupor persists, combine whisky with hot coffee.

CHAPTER VII

EYE, EAR, AND MOUTH

EYES

At Birth

AT birth in every hospital and in private houses the physician or midwife should drop one drop of a 2 per cent. solution of nitrate of silver on the eyeball. This will prevent an infection of pus germs. This is the only safe means of preventing eye trouble.

Crusted Eyelids

If baby wakes up in the morning with a cold in the head, the mother may find pus oozing from its eyes, and also that the lids are glued together by this pus drying and forming crusts. These crusts can be softened and loosened from the eyelashes by soaking them in boric acid solution (a pinch of boric acid to a wineglassful of lukewarm water) applied on absorbent cotton. The lids should be bathed with this solution several times a day and after each bathing borated vaseline on cotton should be thoroughly applied.

"Sore Eyes"

Many babies have what is commonly called "sore eyes" within two or three days after birth, sometimes later. The eyelids become reddened and swollen, and later pus will be seen in the eyes. The child looks as tho it

had "caught cold in the eyes." The proper name for this condition is ophthalmia. It is caused by a germ getting into the baby's eyes during birth. A smear should be taken of the pus from the corner of the eye and sent to a laboratory for diagnosis. If a gonococcus is found, then treatment should be instituted accordingly. It is better, when possible, to identify the pus germ causing this illness, for it may be transmitted by the infant's own mother or by a nurse. Ophthalmia

The physician's attention should be called to the sore eyes at once. Neglect and carelessness may result in blindness.

EARS

A baby suffering from earache will cry and scream continuously. As a rule the child will put its hand to the affected side of the head, or press its head deep into the pillow. Babies suffering with earache invariably rub their gums so that they sometimes convey the impression that they are teething. In some instances the head will be thrown back and the baby will appear to have a spasm of the muscles of the neck. When the affected ear is touched, baby will usually jump and scream with pain.

Most cases of earache are immediately relieved by the application of an ice-bag or ice-

cold cloths. This should be given a thorough trial before resorting to any other method of treatment. An ice-bag is very soothing and will frequently put a child to sleep. In rarer instances there will be no relief by the ice, and a small hot-water bag may be tried.

If this does not help, the ear should be syringed with warm camomile tea or with a teacupful of warm water containing one-half teaspoonful of bicarbonate of soda. A small bag containing salt may be warmed and applied for its dry warmth behind the ear. Do not stick hairpins or other substances into the middle ear, but rather consult a physician if the symptoms do not subside after these remedies have been tried.

Running Ear

A running ear that follows influenza, measles, or scarlet fever requires careful antiseptic treatment. There is always a possibility of the pus extending through into the deeper portions known as the mastoid cells.

For a simple running ear, the ear may be washed with a teacupful of warm water containing one teaspoonful of bicarbonate of soda. This should be slowly injected into the ear by means of a small glass ear-syringe. Powdered alum or boric acid, one-half teaspoonful to a half pint of warm water, temperature 102° F., may be syringed into the ear night and morning.

If a child is in a weakened condition, then it is necessary to give it a tonic, such as iron, several times a day after feeding. In many instances, instead of syringing the ear, wiping the ear with cotton on a small toothpick several times a day is very helpful. Good results sometimes occur by wiping the ear dry with absorbent cotton, and, after removing the cotton, wiping the internal ear with cotton saturated with pure alcohol, or if alcohol can not be procured, spirits of camphor can be used.

If there is a catarrhal discharge from one or both ears lasting several weeks, which does not improve with syringing, then the throat should be examined for the presence of adenoids.

Projecting ears can be corrected by having the baby wear a thin but tight-fitting cap every night and during the day while asleep. The younger the baby is, the easier this trouble will be corrected. At any age it will take months of constant treatment. **Projecting Ears**

SPRUE—SORE MOUTH

The tender mouth of a new-born infant can easily be infected with an unclean nipple or pacifier containing disease germs. This may result in an infection of the mouth called sprue.

The yellowish or yellowish-white spots seen

on the tongue, cheeks, and gums are usually due to a fungous growth which spreads rapidly. While there is no danger to the child's life, it will interfere with the appetite and digestion, and should not be neglected. A local application of one drop of pure carbolic acid thoroughly mixed with one teaspoon of glycerin and one teaspoon of water, and applied with absorbent cotton, once or twice a day is sufficient to destroy these spots. If, however, they do not respond to this treatment within a reasonable time a physician should be called.

One-third of a teaspoonful of borax and honey given three times a day, or several drops of glycerin dropped into the mouth after each feeding will frequently relieve this condition.

Stagnant milk in the mouth, especially in a feverish child, can produce soreness and ulceration. A drink of water after each feeding is sufficient to cleanse the mouth and prevent the condition. In obstinate cases boric acid powder dusted into the mouth may be required. Attention to the bowels to avoid constipation is necessary in every case of sore mouth.

CHAPTER VIII

BAD HABITS, ETC.

THUMB-SUCKING

THE habit of thumb-sucking is usually formed at or about the period of dentition. When infants suffer with colic or flatulency or are hungry, they seem to find relief by sucking their thumbs. Very often, nursemaids, knowing the relief that is afforded by thumb-sucking, teach the infants the use of a thumb. An irritant gum will seem to be relieved by the pressure of the finger. This habit may continue long after the child is through teething. It is met with more frequently than any other habit in early childhood, and may result in thickened and protruding lips. The upper jaw is sometimes forced out of shape by the pressure of the thumb back of the teeth, thus crowding the nasal passage and preventing a normal breathing process. This repeated day after day spoils the shape of a pretty mouth, and frequently the thumb and lips are blistered from the vigor of the sucking.

The habit once formed is hard to break.

Very few cases will of their own accord stop the habit. Reasoning, pleading, and punishment are of little avail. If the child is shamed, it will seek seclusion and indulge in the habit at night, thus slyness and deceit will develop.

Thumb-sucking frequently leads to nail-biting. It is far more easy to prevent the habit, than to cure it once it is formed. As often as the thumb is put in the mouth, it should be gently but firmly removed, never should it be left there long enough for the habit to be formed. The application of tincture of aloes or a 2 per cent. quinin solution to the fingers will in many instances break up this habit, because of the bitter taste. These solutions should not be applied as a punishment. The cooperation of the child should be sought, and by perseverance its self-will strengthened.

If the habit has been indulged in for months, mechanical restraint may be necessary. The Hand-I-Hold mitts,* procurable at any drug store, are convenient. They are easily applied and do not limit the freedom of the arms. They are made of aluminum, ventilated with holes, and finished with a soft sleeve to go over the baby's wrist, are light in weight and can be washed and boiled. There

*Manufactured by R. M. Clark & Co, Newton Centre, Mass.

are four sizes to fit children from three months to seven years.

NAIL-BITING

Nail-biting is usually found in nervous children and is especially noticed when these children are frightened. Correction by reasoning, scolding, or spanking is seldom effectual. Place gloves on the child's hands constantly day and night as a reminder. If the habit continues in spite of the gloves, apply tincture of aloes to the nails and finger-tips night and morning.

BED-WETTING

When children over three years of age wet the bed at night a distinct reason for it must exist. In a boy a tight foreskin may cause irritation and require circumcising. In girls worms wandering from the rectum into the vagina may irritate the opening of the bladder. At times the urine is at fault and must be corrected by proper diet. Meat should be stopped. Milk, eggs and fruit may be given. The foot of the bed should be elevated and the bladder emptied the last thing before retiring. Electricity may be necessary to restore the tone if weak bladder muscles exist. Electricity should only be given by a physician.

Training the muscles of the bladder to hold

the urine has been tried in an older child. The child is told that it should begin to pass its water and then suddenly stop. Then after a few moments recommence the urine and again stop after a moment. This method of training the sphincter muscle of the bladder will frequently cure the habit. In obstinate cases an examination should be made and the bladder carefully inspected to see if any tumor or gravel or other irritant causes this condition. The use of a cold shower over the spine and over the bladder every day, or a cold tub bath is frequently beneficial. When strychnin is necessary, it should be ordered by a physician.

MASTURBATION

By masturbation is meant playing with or fumbling the genital organs. This is usually done with the hand or by rubbing the thighs together. When very young infants masturbate they rub their thighs together continuously until exhausted. They become very red in the face, and when restrained become very irritable. When older children masturbate they become very pale and anemic, they are absent-minded and shy, they frequently complain of headaches and are very irritable. This is not always a bad habit, but frequently is caused by some abnormality of the genital parts. In such cases nothing

but surgical relief will effect a cure. It may be caused by an irritation due to an elongated or firmly adherent foreskin, or, in girls, when the skin over the clitoris is adherent. It may also be caused by the presence of worms or if the genital parts are not kept clean. Moral training is useless if any irritation exists which excites this desire, therefore as soon as this habit is noted the child should receive prompt medical aid. All children should be constantly watched to see if this habit is forming and they should never be permitted to sleep with their hands under the bedclothing.

In older children the habit is hard to detect. A consciousness that they are doing something wrong early leads even young children to get by themselves when they repeat the habit. One of the surest ways of detecting this habit is to examine the fingers of the child after it has fallen asleep. The odor of the genital organs is strong and can easily be detected on the fingers.

Tight Foreskin

If the foreskin is tight and has a pin-point opening, it may cause a series of symptoms—among them bed-wetting, irritability and insomnia. Such children usually fumble with the parts, as there is constant irritation.

In some cases we can widen the foreskin with a dilator. This should only be attempted by a physician. With proper oiling

every day relief is frequently given. If this stretching does not give permanent relief from the sleeplessness and the irritability then we must resort to circumcision.

Circumcision

Circumcision is a routine procedure in most of the largest hospitals in New York City and throughout the United States. It is wise not to operate if a tendency to bleed exists.

This operation is advantageous in older children when nervous conditions, such as St. Vitus dance, exist. Dribbling of urine causing irritation and redness is benefited by circumcision.

When adhesions of the foreskin exist and circumcision is not performed, then masturbation may result. If masturbation is noted, then circumcision usually cures the same.

Adherent Clitoris

When girls fumble with the genitals or complain of an irritation, it is usually due to a cheese-like deposit underneath the hood or cover of the clitoris.

A simple operation, preferably with a mild anesthetic, is necessary to remove the cheesy smegma and thus remove the cause of the irritation.

CHAPTER IX

WORMS—NIGHT TERRORS

WORMS

AFTER the first year, when children receive some solid food in addition to their milk diet, they may be troubled with worms. The majority of children seen by me, whose mothers suspect worms, rarely, if ever, have worms. About ten cases out of one hundred in which worms were suspected by the mother have really proven to be worm cases.

Thread-like worms resembling spool cotton can be plainly seen when examining the rectum. As a rule there is an intense itching which compels the child to scratch. Restlessness at night and loss of appetite are rarely due to worms. It is true that an occasional case may be troubled with worms, but let a physician see the child and let him administer the worm medicine rather than run the risk of giving powerful medicines which are not at all necessary.

Round worms, five or six inches long and brown in color, have been seen by me in young children. When tapeworm is present we

usually find the child suffering from loss of flesh, altho the child will take a fair amount of nourishment. It is only these tapeworm cases, found in children between six and twelve years of age and requiring careful diet besides expulsive treatment, that need cause any concern. I have seen cases where severe bleeding from the bowel has been caused when an anxious mother gave a strong patent tapeworm medicine, thinking that the child had worms.

NIGHT TERRORS

Sometimes children will suddenly awaken from a sound sleep and shriek or scream; others will grasp at any object within reach, and sometimes imagine that animals are in the room. Too rigid discipline or fright may provoke bad dreams and give rise to distinct hysteria. Such attacks may be provoked by intestinal worms, dyspeptic or intestinal derangement. The irritation of an elongated prepuce or a tight foreskin may cause night terrors. Masturbation in the male or female child will cause bad dreams and distinct nervous symptoms.

While many cases are due to intestinal colic and an overloaded stomach, there are cases caused by brain-disease, especially those cases having bulging of the soft spot on the

top of the scalp. Cases of water on the brain (hydrocephalus) frequently have night terrors. This is called hydrocephalic cry.

Many cases of running ear which suddenly stop will give rise to intense pain, and more often to mastoid or brain abscess. The diagnosis in such cases would be materially aided by an examination with an *X*-ray. A growth in the brain can also be located by means of the *X*-ray. When convulsions or spasms and rigidity of the neck are noticed in a very sensitive infant, then by all means have an *X*-ray of the head taken.

CHAPTER X

EXTERNAL APPLICATIONS, AND THE MEDICINE CHEST

Flaxseed Poultice

INTO a pint of boiling water stir flaxseed, also known as linseed, until it forms a paste just thick enough to flow from a spoon; add a tablespoonful of sweet-oil or glycerin; spread it one-half inch thick between two layers of cheese-cloth; apply where directed, and cover with a layer of cotton, warm flannel, or oiled silk. If the part to be poulticed is anointed with sweet-oil or vaseline before the poultice is applied, no blisters will be raised.

Mustard Poultice

To make a mustard poultice take three teaspoonfuls of mustard and six teaspoonfuls of wheat-flour, add two teaspoonfuls of sweet-oil or glycerin and enough warm water to make it into a thick paste. Spread between two layers of cheese-cloth, and apply to the part directed, after anointing the part with vaseline. This poultice can be left on only a few minutes and the skin should again be anointed with vaseline or dusted with cornstarch.

Mustard Foot-Bath

To give a mustard foot-bath, tie one tablespoonful of mustard into a cheese-cloth bag. Let this soak for a few minutes in a foot-tub

containing two quarts of warm water, temperature 102° F. The feet should be immersed to above the ankles for about two minutes. On removing the feet, place them near a hot-water bottle or wrap them in a warmed towel.

Turpentine Stupe

A turpentine stupe is made by adding one-half teaspoonful of spirits of turpentine to one pint of boiling water and mixing thoroughly. Dip two thicknesses of flannel into this turpentine and water and wring out until it does not drip. Apply as directed and cover with a large piece of cotton or oiled silk.

Pneumonia Jacket

A pneumonia jacket should be shaped like baby's sleeveless shirt. A layer of cotton is placed between a layer of cheese-cloth and one of oiled silk. The edges are turned in and the three layers basted together. The shoulder seams or straps may be sewed together or tied with tapes. The front is closed by means of tapes sewed on either side. The jacket is worn with the layer of cheese-cloth next to the skin. If the skin is moist, alcohol sponging is necessary before a new jacket is applied. Two jackets should be made so as to have a change when one gets moist.

Hot Water Bottle

A hot-water bottle should be half-filled with hot water, the air expelled by pressing the empty part of the bag together, and the top screwed on. The bag should then be held up-

side down to see if the water drips. Draw over the bottle a flannel cover or sew the bottle into a square of flannel.

Ice-Bag

An ice-bag should be half-filled with crushed ice, the air expelled, and the top screwed on. If an intense cold is desired, a little common salt may be added to the crushed ice. A layer of moist cheese-cloth or cotton should be laid between the bag and the skin, otherwise the extreme cold is painful. If the weight of the bag is uncomfortable to the patient, especially if applied to the head, then the bag may be wrapped in cheese-cloth and pinned to the pillow, so suspended as to barely allow it to touch the head. The bag must be refilled before all the ice has melted.

Cold Compresses

Cold compresses are made of three or four thicknesses of linen wrung out of cold water and applied where directed. Two compresses should be used, one of which is kept in the cold water while the other is on the patient.

Enema (To Wash the Bowel)

To give a simple enema, ordinary suds are made with Castile or glycerin soap and warm water, temperature 100° F. A fountain syringe should be used, to which an infant's-size nozzle is attached. Fill the bag with the amount of suds ordered (usually one or two pints) and anoint the nozzle with vaseline. Open the spring clasp on the tube and allow the air and a few ounces of water to escape.

Gently insert the nozzle into baby's rectum and allow the water to flow in a slow, steady stream, the bag being held about two feet over the baby's body.

Camomile Injection

A camomile injection is made and given in the same manner as a simple enema, except that camomile tea, temperature 100° F., made by steeping one tablespoonful of camomile flowers in a quart of boiling water, is used instead of the soap suds.

Oil Rub

The use of oil externally is frequently advised. For weak and premature infants a daily rub of oil will prevent chilling of the surface, but it does not add to the weight. Every oil possesses nutritive qualities. It will protect the infant from suddent changes in the atmosphere, thus protecting it against colds.

Weak infants, given oil rubs, do not need tub bathing. When oil is properly applied it cleanses the skin and removes the epidermis.

When the extremities are cold and bluish and the circulation is poor, an oil rub should be given. The oil should be warmed and applied over the whole body. This will require from five to ten minutes. It should be given daily instead of the tub bath.

THE MEDICINE CHEST

The baby should have its own ointments, thermometer, fountain syringe, etc. These should be kept in the nursery away from dis-

infectants and poisonous drugs. A list of the articles should be pasted on the inside of the door of the medicine closet so that in an emergency anyone may know whether a certain looked-for article can be found.

Whether or not the closet contains poisons the doors should always be locked, for an overdose of many drugs, whether poisonous or not, should be avoided.

The key should be kept out of the children's reach, in a safe but accessible place known to all the adults.

When the baby travels or when going to the country, a full and fresh supply of all drugs and requisites it is likely to need should be taken along. The following list should be supplied and will meet almost all emergencies:

Castor-oil
Glycerin suppositories
Aromatic sirup of rhubarb
Calcined magnesia
Essence of peppermint
Sweet spirits of niter
Sirup of ipecac
Powdered mustard
German camomile
Alcohol
Witch-hazel
Glycerin
Glycerin soap
Vaseline
Zinc salve
Bicarbonate of soda
Electric flash-light
Boric-acid powder
Pure talcum powder
Eyestone or flaxseed
Absorbent cotton
Cheese-cloth
Gauze and muslin bandage
Linseed oil and lime water
Tincture of iodin
Thermometer
Medicine dropper
Medicine glass
Ice-bag
Hot-water bottle
Fountain syringe
Small glass syringe
Phenacetine

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